

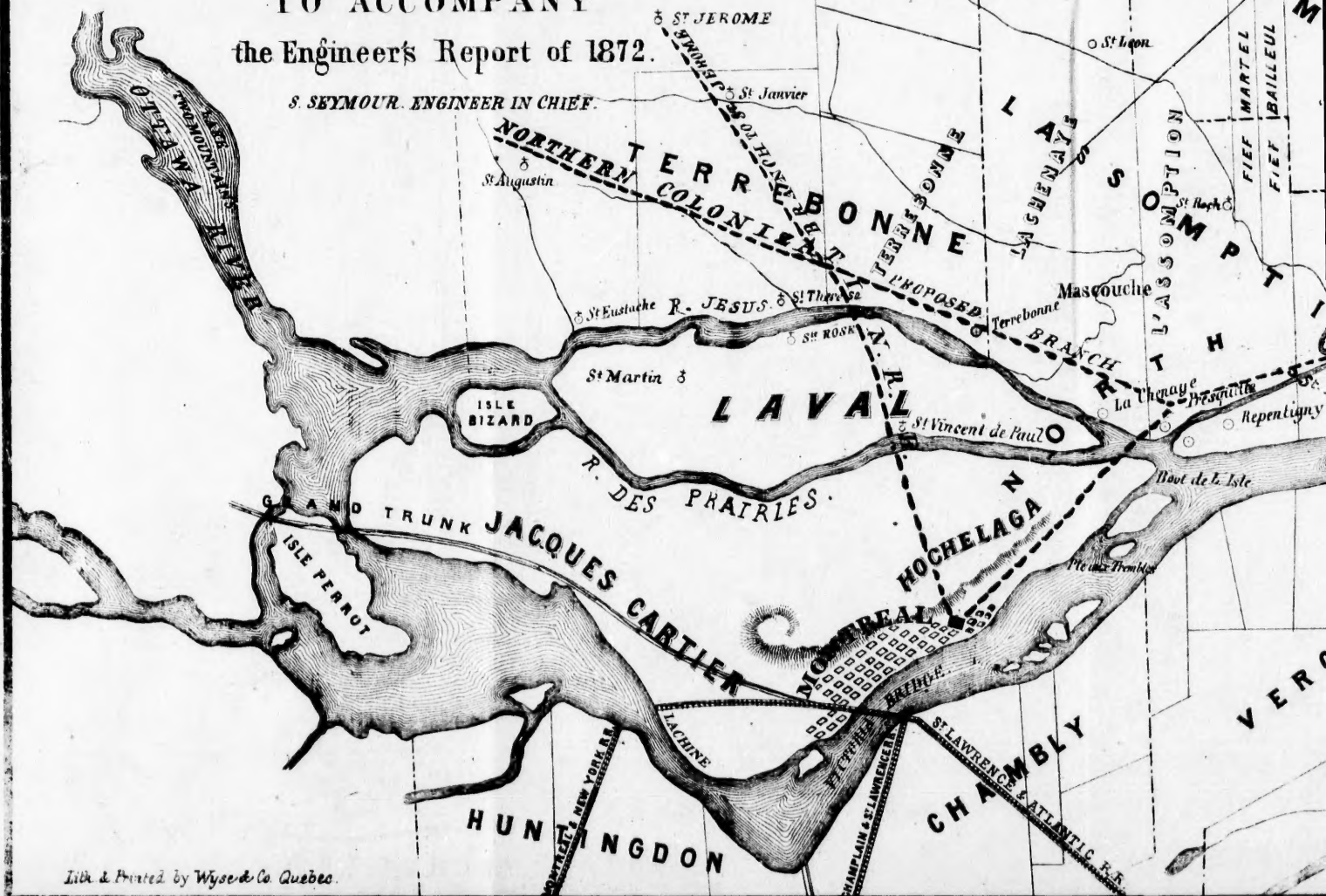
# NORTH CAROLINA

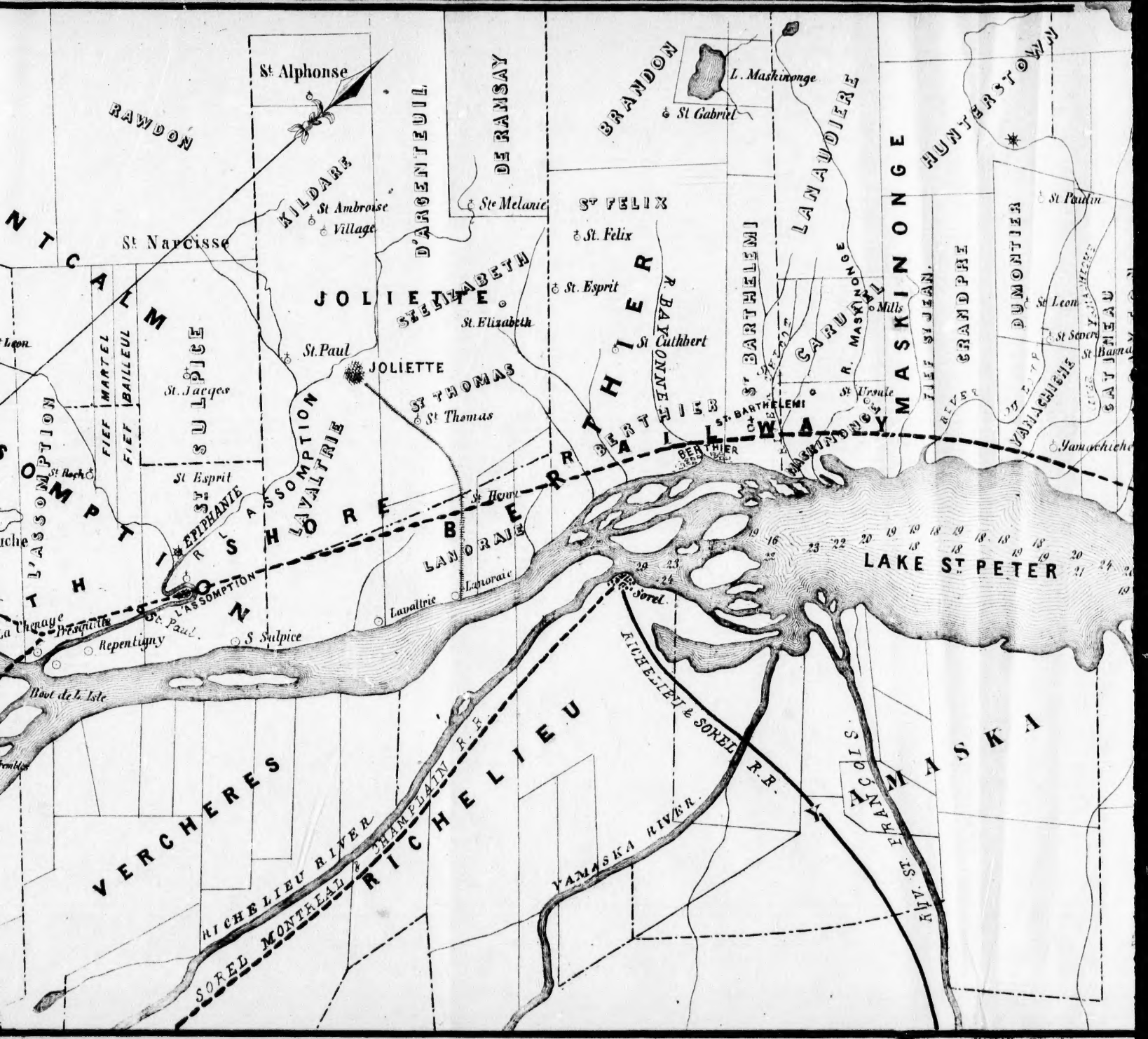


# PLAN OF THE NORTH SHORE RAILWAY

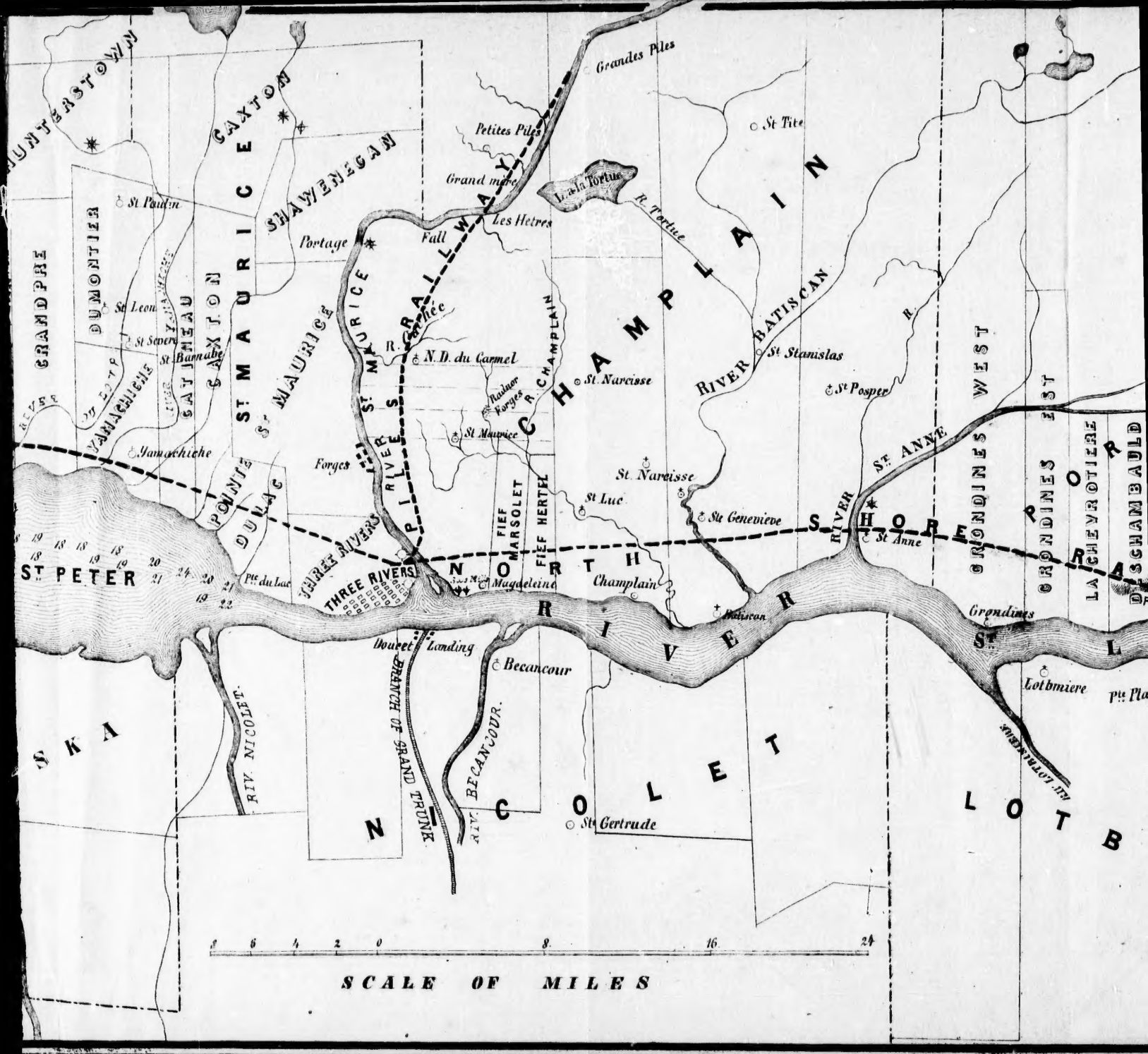
TO ACCOMPANY  
the Engineer's Report of 1872.

S. SEYMOUR. ENGINEER IN CHIEF.



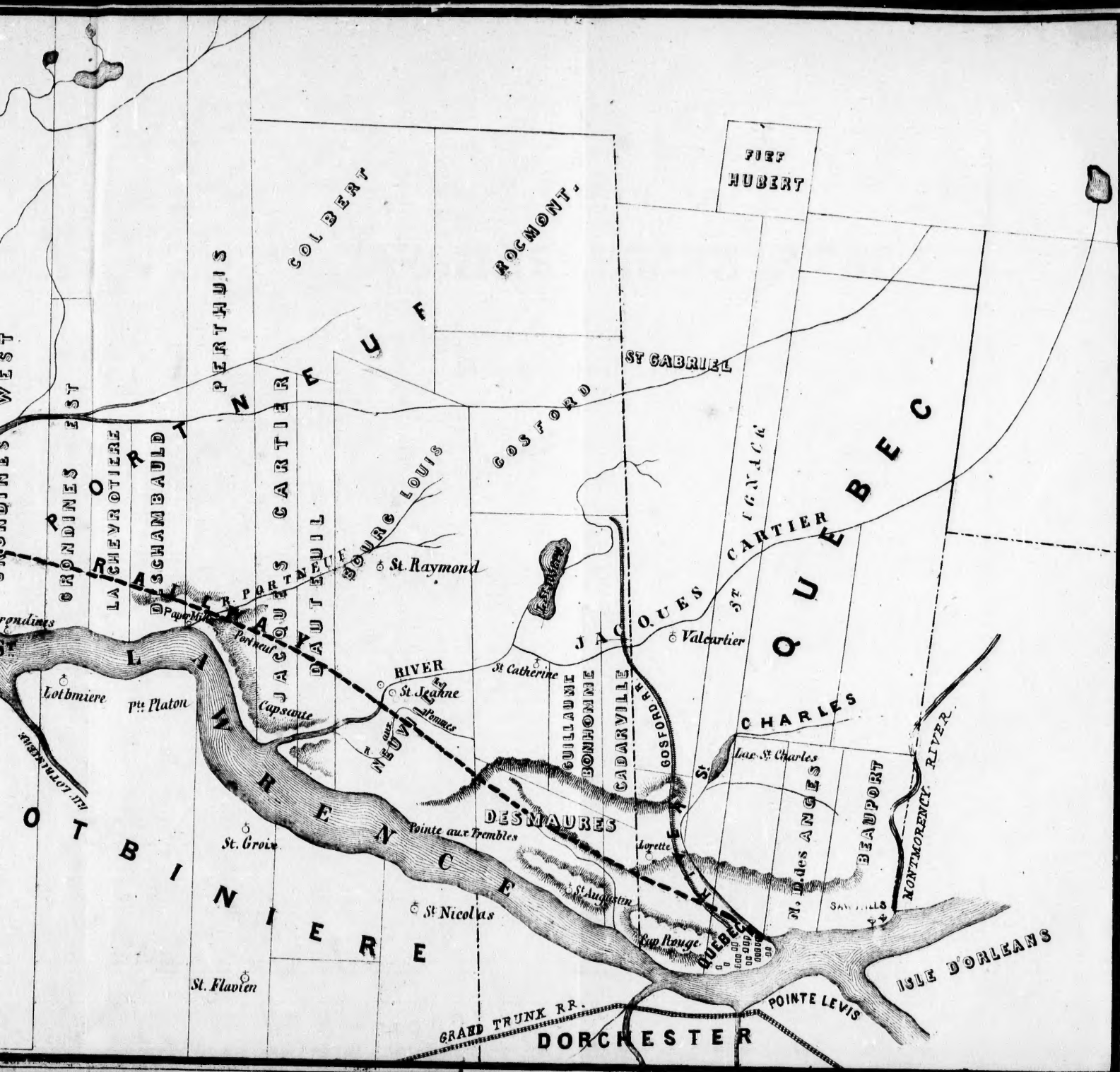






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SCALE OF MILES





# REPORT

IN RELATION TO

THE PAST HISTORY, PRESENT CONDITION,  
AND FUTURE PROSPECTS

OF THE

## NORTH SHORE RAILWAY OF CANADA.

---

BY

GENL. SILAS SEYMOUR,

ENGINEER IN CHIEF.

LATE, STATE ENGINEER AND SURVEYOR GENERAL OF NEW YORK;  
CONSULTING ENGINEER OF THE UNION PACIFIC RAILROAD;  
GENERAL CONSULTING ENGINEER;  
&c., &c., &c.

---

WITH AN APPENDIX.

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QUEBEC:  
PRINTED BY AUGUSTIN COTÉ & Co

1872.





# NORTH SHORE RAILWAY.

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## ENGINEER'S REPORT.

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QUEBEC, April 20th, 1872.

GENTLEMEN :

I have the honor to submit the following facts and considerations, with reference to the Past History, Present Condition, and Future Prospects of the NORTH SHORE RAILWAY.

### I. PAST HISTORY.

In 1853, the Canadian Parliament incorporated the "North Shore Railway Company" with an authorized capital of \$4,000,000, and with power to construct a Railway, upon the North Shore of the St. Lawrence River, from the City of Quebec to the City of Montreal; having also power to acquire and to alienate property, to contract, to mortgage, and to issue Debentures, together with other powers necessary for all the purposes contemplated by their Act of Incorporation. (16 Vict., chap. 100.)

In 1854, the Act of Incorporation was amended in certain technical particulars not at all affecting the main provisions of the Charter. (18 Vict., chap. 34.)

In 1857, an Act was passed to incorporate the "St. Maurice Railway and Navigation Company," with power to construct a Railway from the City of Three Rivers to the Grand Piles, on the St. Maurice River, a distance of about thirty miles. Also with power to place one or more Steamboats upon the River above the Grand Piles. The Act also granted one million, five hundred thousand acres of Crown Lands in aid of the construction of the Railway. It also empowered the North Shore Railway Company to amalgamate with the St. Maurice Railway and Navigation Company within one year after the passage of the Act, the amalgamated Company to be known under the title of the "North Shore and St. Maurice Railway and Navigation Company," and to become the owners of the land grant, upon the completion of the whole Railway line of the said amalgamated Company, which was to be commenced within two years and completed within five years after the passage of the Act. (20 Vict., chap. 149.) The Amalgamation was duly effected in accordance with the provisions of this Act.

In 1858, an Act was passed, changing the name of the Amalgamated Company to the "North Shore Railway and St. Maurice Navigation and Land Company," and confirming the Land Grant of one million five hundred thousand acres to the Company under its new name. (22 Vict., chap. 56.)

In 1861, an Act was passed, extending the time for the completion of the Railway and other works of the North Shore Railway and St. Maurice Navigation and Land Company, from the month of June, 1862, up to October 30th, 1866. (24 Vict., chap. 85.)

In 1866, an Act was passed, extending the time for the

completion of the Railway and other works, until the 1st day of January, 1872. (29, 30 Vict., chap. 95.)

In 1870, an Act was passed, revoking all former grants of Crown Lands to the "North Shore Railway and St. Maurice Navigation and Land Company," and appropriating in their stead "three million two hundred and eight thousand five hundred acres," in aid of certain Railway Companies therein specified, of which two million acres are specifically appropriated "to the North Shore Railway and St. Maurice Navigation and Land Company," now to be called the "North Shore Railway Company," for building the North Shore Railway from Quebec to Montreal, and the road to the Grand Piles, and the establishment of a line of Steamers on the St. Maurice. And providing further that the Lieutenant-Governor in Council, may, "when it is established that the said Company is actively engaged in the construction of its works, grant to it, for each twenty-five miles of road completed, a portion of said lands proportionate in extent to such length of road." The Act also contains a "Schedule" in which the lands, from which the two million acres are to be selected, are fully described. (34 Vict., chap. 21.)

In 1870, another Act was passed, extending the time for the completion of the Railways and other works of the North Shore Railway and St. Maurice Navigation and Land Company, from the first day of May, 1872, to the first day of May 1877. Provided, that the said Railway Company abandons all claim to the public lands granted by previous Acts, "in consideration of two million acres of other lands which are given in the place of the old lands, granted by an Act, passed during the present session of the Legislature." This Act also provides that, "the Board of Directors of the said Company as constituted from the

formation of the said Company up to the present time, is hereby declared to have been legally elected and chosen, and to have had lawful power and authority for the discharge of their functions. This Act also authorizes the Council of the City of Quebec to subscribe "in the name of the Corporation of the said City a sum of One Million dollars to the stock of the North Shore Railway and St. Maurice Navigation and Land Company, subject to the conditions that the said Council might judge proper to impose upon the said Company," and also confirms the Acts of said Council of the City of Quebec performed on the 28th October, 1870, in relation to said subscription and the conditions relating thereto. This Act also provides that "the said Company may raise by way of loan upon their Bonds and Debentures in addition to their authorized capital stock, which shall be Six Million dollars, any sum of money not exceeding the amount of such capital, subject to the forms and provisions of the eleventh sub-section of the ninth clause of the Railway Act."

It also provides that "the name of the said Company shall be The North Shore Railway Company" (34 Vict., chap. 22.)

The foregoing may be regarded as a synoptical view of the legal status of the North Shore Railway Company up to the present time.

During the year 1853, a careful survey was made of the Main Line between Quebec and Montreal, under the direction of Mr. James N. Gildea, Chief Engineer, from whose report I deduce the following material facts.

The length of line between the terminal stations is reported to be 156 miles. Of this distance 86½ per cent. is

in straight lines, and  $13\frac{1}{2}$  per cent. only, is composed of curves of very large Radii. Upon 49 miles the grades are level, of the remaining 107 miles, 44 miles are under 6 feet per mile, while only 20 miles are over 20 feet per mile.

The printed report of Mr. Gildea, which contains a small Map; a general description of the line; an approximate estimate of its cost; together with tables of grades and curves, is all that now remains with the Company; the detailed Maps and Field Notes having been destroyed by Fire in 1854.

In 1858, the line was re-surveyed by Mr. T. Trudeau, Civil Engineer, who made a Report which, I am informed, was never printed, but from a written copy which has been preserved, I find that the length of the Main Line is reported as being 160 miles, and the length of the Piles Branch 36 miles. A very well executed Profile of the Main Line; a Book containing the quantities of excavation and embankment, as calculated from the centre line; some traces of Plans for bridging the larger streams; together with the written Report, above referred to, are all that now remain in possession of the Company as the result of Mr. Trudeau's survey. The written Report contains a general description of the Line and of the Country through which it passes; but no estimate of probable cost, nor details of Grades and Curvature.

In July 1871, I was appointed Consulting Engineer, and acting Engineer in Chief of the Railway. After a careful reconnoissance of the country between Montreal and Quebec, in company with Mr. L. P. Gauvreau, my Principal Assistant, who had been connected with previous surveys, and was therefore familiar with the country, I recommended the Company to authorize another survey of the line with a view of being prepared to place the



work under contract at the earliest practicable day. The recommendation having been approved, the first party of Engineers was put in the Field on the 25th August; and three other parties followed as soon thereafter as they could be organized. The surveys were conducted, not so much with reference to a final location of the line, as with a view to a verification of the results of previous Surveys; and at the same time to test the capabilities of the country with reference to some changes in the route which were suggested, in order to meet the conditions of subscriptions to the Stock of the Company, which were being made by some of the Counties through which the Railway is to pass.

The field work was completed early in December last; and the result has shown very conclusively to my own mind, that the line as originally located, with some modification in details, is substantially the one upon which the Railway should be constructed. Its very great superiority in the important elements of length, cost, alignment and grades, over any other practicable route of which the country admits, became so manifest before the final completion of the surveys, that I did not hesitate to recommend the Company to abandon these County subscriptions altogether, rather than submit to the conditions which were imposed by them with reference to the location of the line.

The most important facts established by this survey may be briefly stated as follows:

1. The length of the Main Line from Quebec to Montreal will not exceed one hundred and sixty miles.
2. The length of the Piles Branch, extending from the Town of Three Rivers to the Grand Piles, upon the St. Maurice River, will not exceed thirty miles.

3. Very much the largest portion of the Main Line will be straight, and the curvature upon the remaining portion will be comparatively light and easy.

4. Upon very much the largest portion of the Main Line, the grades will be level or substantially so, and upon the remaining portion they will be comparatively easy. The maximum grade ascending Easterly may be assumed at thirty feet per mile; and Westerly at fifty feet per mile.

5. About five thousand lineal feet of Truss Bridging will be required, the principal bridges being over the St. Maurice River, and the branch of the Ottawa River which empties into the St. Lawrence, at the foot of the Island of Montreal.

6. A very large proportion of the Road-bed will be composed of embankments of sufficient height to enable the track to be kept free from obstruction by snow during the winter months; and, wherever excavations occur, they will be short, and easily protected from snow.

During the month of August, 1871, negotiations were opened, with an Association of Gentlemen from Chicago, of known experience and responsibility, for the construction and equipment of the Main Line and Piles Branch, based upon such securities and assets as were then supposed to be available on the part of the Company; among which were One Million dollars of debentures to be received from the Counties and Municipalities along the line of the Railway, for subscriptions to the Capital Stock of the Company.

These negotiations resulted in a written proposition from the gentlemen above referred to, dated August 31st, 1871, which was approved by the President, and a Committee of Directors having the matter in charge. But as some of the

Counties along the line afterwards failed to make the required subscriptions, except upon terms and conditions that were, as before observed, entirely inadmissible on the part of the Company, it became necessary to negotiate such a modification in the terms of the original proposition as would enable the Company to carry out its provisions in good faith to all parties interested. This was done in the City of New York, on the 13th of February last; and the proposition, as amended, was duly approved and accepted by the Board of Directors, on the 21st February, 1872, the President of the Company being authorized by the Board to execute a Contract with the Parties upon the terms and conditions specified in the amended proposition.

The Contract was accordingly duly executed by the Railway Company, on the 5th of April, 1872, with the CHICAGO CONTRACTING COMPANY, composed of Messrs. Samuel L. Keith, Perry H. Smith, George L. Dunlap and Associates.

## II. PRESENT CONDITION.

It will be seen from the foregoing somewhat hasty and imperfect sketch of the previous history of the North Shore Railway, that, after struggling through a feeble, and at times, almost hopeless existence, during a lapse of nearly twenty years, since the date of its original charter, the Company has at last reached a point in its history where the fact of the speedy completion of its Railway seems to be established beyond the reach of any ordinary contingency.

That an enterprise of such great and manifest importance, not only to the Cities of Quebec and Montreal, as well as to the intervening Towns and Counties through which it is to pass ; but also to the Province of Quebec, the Dominion of Canada, the Western portion of the United States, and the Cities lying upon the North-Eastern portion of the Atlantic Coast, should have been suffered to remain so long in an embryo state, seems to be a fact almost beyond the power of human comprehension. But nevertheless the fact exists : and it must be a source of great gratification, as well as commendable pride to the present energetic Officers of the Company, that they have at last "broken the shell," and allowed the enterprise to assume its proper position among the Great Commercial Developments of the Age.

The Company having closed a Contract with responsible parties for the construction and equipment of their Railway, it is deemed proper to state generally, the principal features of the Contract, as affecting the characteristics of

the Road and Equipment ; and its relative cost, as compared with the Railways of the State of New York.

#### PRINCIPAL FEATURES OF THE CONTRACT.

The Contract provides for a *First Class Railway* in all respects, both as regards Permanent-Way and Equipment.

The Right of Way is to be procured of sufficient width for a double track whenever it may be required, and ample grounds are to be secured for Sidings, Work Shops and Stations.

A substantial and durable Fence is to be constructed upon each side of the Railway throughout its entire length, with convenient openings or passage ways for public and private roads.

The Road-bed is to be constructed in the most permanent manner, of materials entirely imperishable, and of ample width for the superstructure, and all necessary side drainage. The Road-bed is also to be thoroughly ballasted whenever the native material is unsuitable for the support of the track.

The Masonry is to be of first class rubble work, composed of the most durable well shaped stones, and laid upon permanent and unyielding foundations.

The Bridges are to be of a quality equal to the best patent Howe Truss ; and to be composed of the most durable kinds of timber, with proportions varying according to their lengths between bearings.

The Superstructure is to be composed either of cross-ties, eight feet long and six by seven inches in size, laid two feet apart from centre to centre ; or of longitudinal sills eight by twelve inches in size, extending underneath the entire length of the iron rails, and connected together laterally by means of light cross-ties framed into their upper



surfaces at proper intervals to prevent the track from spreading.

The Iron Rails are to be of the best quality of English or American manufacture, weighing not less than fifty-six pounds per lineal yard, thoroughly spiked down and secured at the joints by fish-plates of the most approved pattern. The Gauge is to be 4 ft. 8½ inches.

The Sidings are to be equal to at least five per cent. of the main track.

Large and commodious Machine Shops, for constructing and repairing engines and cars, are to be erected, either of brick or stone, and completely furnished with tools and all other conveniences, at Quebec, Three Rivers and Montreal.

Engine houses, of sufficient capacity for the accommodation of ten engines in each, including a turn-table, are to be erected, either of brick or stone, at Quebec, Three Rivers and Montreal. And also one small Engine house and turn-table at the terminus of the Branch at the Grand Piles.

Water stations, with all modern improvements, are to be constructed at Quebec, Three Rivers and Montreal, and also at such intermediate points, at intervals of not less than fifteen miles, as may be found necessary for the convenient working of the Road.

Large and commodious Passenger and Freight houses are to be erected, either of brick or stone, at Quebec, Three Rivers and Montreal, of such dimensions, and with such finish and furniture, as may be convenient and necessary for the accommodation of the Public and the Company.

Suitable Station houses, with passenger and freight accommodations combined, are to be constructed, either of wood, brick or stone, at each intermediate or way-station,

with such furniture and fixtures as may be required for the accommodation of the way business of the Road.

The Road is to be furnished and equipped with ten first class passenger locomotive Engines ; eight first class freight locomotive Engines ; twelve first class passenger Cars ; ten second class passenger Cars ; eight baggage, mail and express Cars combined ; twenty emigrant Cars ; twenty-five cattle Cars ; one hundred and twenty-five box freight Cars ; one hundred platform Cars ; and twenty hand Cars ; all of which are to be of such dimensions, construction and finish as may be required for their respective uses.

A good and substantial Steamboat, suitable for the navigation of the St. Maurice River, above the Grand Piles, is to be furnished and put upon the River ; and a suitable Wharf or Landing is also to be constructed for the accommodation of the business at that point.

The Main Line is to be completed on or before the first day of December, 1875, and the Piles Branch, on or before the first day of May, 1877, which latter date is the time required by law for the completion of both the Main Line and Branch.

The Contracting Company have re-imbursed the Railway Company for the expenses incurred on account of Engineering ; and also for all the miscellaneous expenses heretofore incurred, on account of keeping up the organization of the Company, to the date of the execution of the Contract ; and they have agreed in the Contract to pay the future expenses of the Company until the time of its completion.

They have also agreed to pay the interest upon the subscription of One Million dollars to the Stock of the Railway Company by the City of Quebec, until the time of the

opening of the Road between the Cities of Quebec and Montreal, and the running of the first through Train between those Cities.

They have also agreed to pay the interest upon the Six million dollars of Mortgage Bonds to be issued by the Railway Company, up to the time of the full completion of the Railway, in accordance with the provisions contained in the Contract.

The total consideration specified in the contract, to be paid to the Contracting Company, upon the full and faithful performance of all the conditions and stipulations contained therein, is Seven Million Dollars.

One Million of this amount is to be paid *pro-rata*, upon the Main Line, as the work progresses, in the securities of the City of Quebec, drawing seven per cent. interest; and Six Millions are to be paid in the Mortgage Bonds of the Railway Company, having not less than twenty years to run, and drawing seven per cent. interest, based upon the Railway, Equipment and Franchises of the Company, and also upon the Two Million acres of Timber Lands granted by the Government.

The Railway Company has already received available subscriptions to its Capital Stock, from the Town of Three Rivers, and other Municipalities along the line, amounting to about \$150,000; and there are well grounded assurances that the amount will very soon be increased, by subscriptions from the City of Montreal and other Municipalities, until it shall reach the sum of a half Million Dollars.

The Completion and Equipment of the Railway having been fully provided for in the Contract, without regard to these subscriptions, it will be seen, that the Railway Company will, upon the completion of the road, have whatever amount may have been received from them, in the

Treasury, which amount may be applied either to the payment of the future interest upon its Bonds; or to an increase of its Rolling Stock and Equipment, as may at the time be deemed most expedient.

#### COMPARATIVE COST OF THE RAILWAY.

It has been stated that the Total Cost of the North Shore Railway will be \$7,000,000, or at the rate of \$36,842 per mile, for a distance of One hundred and Ninety Miles.

It appears from the last published report of the State Engineer of New York upon the Railways of that State, for the year ending September 30th., 1870, that at that date there were 4,733<sup>1</sup>/<sub>2</sub> miles of Road laid in the State; and that the total cost of Construction and Equipment was \$249,228,896<sup>1</sup>/<sub>10</sub>, or at the rate of \$52,210 per mile; from which, it appears, that *the North Shore Railway will cost \$15,368 per mile less than the average cost of the Railways of the State of New York.*

Inasmuch as it may be claimed that the average cost of the Railways of New York should, from the nature of the Country through which they pass, be much more expensive in their construction than the North Shore Railway, which passes through a comparatively level Country, I have selected one from among the number which I think will be admitted as forming a very fair standard by which to compare the North Shore Railway. I refer to the Ogdensburg and Lake Champlain Railway, which lies also in the valley of the St Lawrence River, between the City of Ogdensburg and Rouse's Point, at the foot of Lake Champlain; and passes over a Country which offers no very serious difficulties to the construction of a Railway. This Railway is 118 miles in length; and the total cost of Construction and Equipment, as published in the last State

Engineer's Report, was \$5,708,217 <sup>91</sup>/<sub>100</sub> or at the rate of \$48,375 per mile, *which is \$11,543 more than the cost per mile of the North Shore Railway.*

In the printed Report of Mr. Gildea, hereinbefore referred to, I find that the total estimated cost of Constructing and Equipping the Main Line of the North Shore Railway, from Quebec to Montreal, exclusive of Fencing, is £757,098 for an estimated distance of 156 miles.

The present length of the Main Line and Piles Branch is assumed to be 190 miles, which, being computed at the same rate, would produce a total of £922,106, equal to \$3,638,424.

An examination of the items composing Mr. Gildea's estimate has satisfied me, that, assuming the quantities to be correct, the prices of labor, materials and equipment are at least 50 per cent. higher at the present time, than they were in 1853, the date of his Report. By including the Fencing, and adding 50 per cent. to his estimate, we have a total of \$5,608,636, or an average cost of \$29,519 per mile.

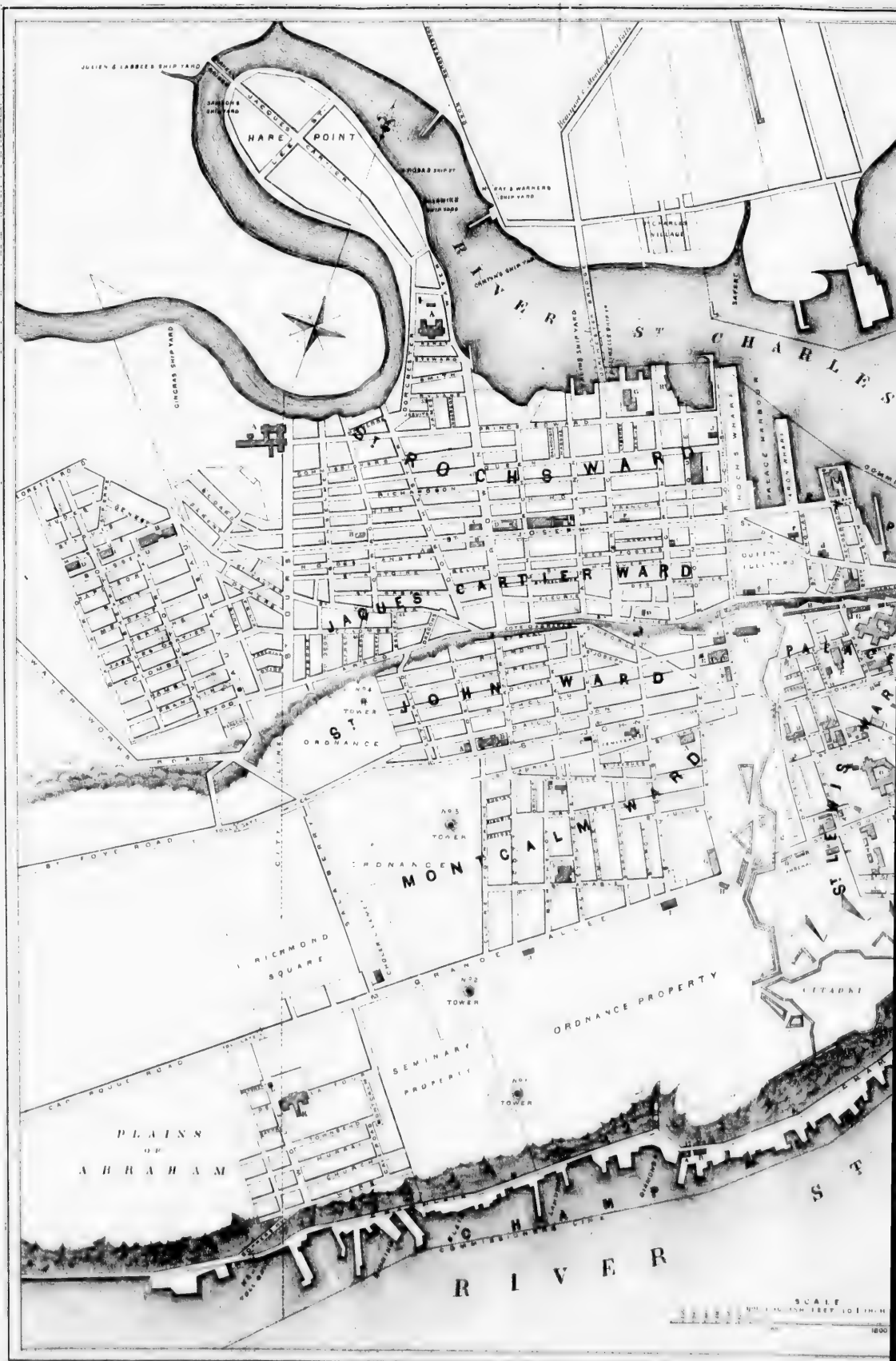
Nothing is included in Mr. Gildea's estimate to cover the miscellaneous expenses of the Company, and the interest upon money and securities, during construction; nor the discounts, agencies, commissions, &c., that must necessarily be incurred in negotiating the securities of the Company; nor the contingent risks of a *financial revulsion*, which might at any time endanger the safety of the Enterprise.

When it is considered that all these Contingencies are assumed by the Contracting Company, and embraced in the present Contract for the Construction and Equipment of the Road; and also when it is shewn that its ultimate



total cost will compare most favorably with that of similar Railways in the neighboring State of New-York ; it must, I think, be admitted that the present Contract is a very advantageous one for the North Shore Railway Company ; and, also, that its provisions are so favorable to the Contracting Company, that they can well afford to push the work forward with energy to completion ; and at the same time indulge in a well grounded hope of ultimately receiving a fair, if not a liberal reward for their labor, and the risks which they have assumed in connection with the Undertaking.

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# PLAN OF THE CITY OF QUEBEC

FOR THE QUEBEC & LEVIS DIRECTORY

PUBLISHED BY

## Marcotte and Levy

FROM A DRAWING BY

PAUL COUSIN

1871



### REFERENCES

#### PALACE WARD

- A Palace Gate
- B Arsenal & Artillery Barracks
- C Baptist Church
- D Trinity Chapel
- E St. Patrick's Church, R.C.
- F Congregational Ch. (Presb.)
- G Hotel Dieu Convent
- H Russell Hotel
- I Temperance Hall
- J Medical College
- K Laval University
- L Seminary
- M Metropolitan Cathedral (C)
- N Archbishop's Palace
- O of Law, Office and Public Works Department
- P Rays Gate
- Q Prescott Gate

#### ST. LEWIS WARD

- A John's Gate
- B Notre Dame Savings Bank
- C National School, English
- D Congregational Chapel (R.C.)
- E Wesleyan Church
- F Methodist Chh.
- G Morris College
- H St. Andrew's Church and School
- I Temporary Post Office
- J Points Barriks
- K Upper Town Market Hall
- L Fire Brigade Station (44)
- M Co-operative & Revolving Food
- N Provincial Police, Hotel
- O Quartermaster's Station
- P Customs General
- Q Militia Office
- R Recent Engineers (Other
- S Officers Barracks & 4th Regt.
- T Provincial Secretary and
- U Minister of Public Instruction
- V Hotel St. Louis Hotel
- W Provincial Prisoners Office
- X Maritime Hall
- Y Court House
- Z English Cathedral
- a Crown Lands Department
- b Commissioner's Office
- c High School
- d French Consulate
- e Foreman's Garden and
- f Justice & Montreal Museum
- g Post Office

#### ST. PETER WARD

- A Notre Dame Church
- B Bonaventure Hotel
- C Trinity Market
- D Richelieu Company
- E St. Lawrence Fair Place (C)
- F Canadian Equine
- G Supermarket Office
- H Prison Bank of L. C.
- I Pringle Telegraph
- J National Bank
- K Montreal Telegraph
- L Quebec Bank
- M National Revenue Office
- N Quebec & Unit Fire Station (4)
- O Insurance Warehouse
- P Fire Brigade Station (3)
- Q British North American Bank
- R Palace Office
- S American Consulate (U.S.)
- T Quebec Barracks
- U Montreal Bank
- V Ontario Bank
- W Montreal Commisariat
- X Police Station (3)
- Y Quebec Curling Club
- Z Bowditch Brothers
- a St. Catharines Brewery
- b Desnoes Cabinet Factory
- c Drums Store
- d Palace Market
- e Gas Works
- f Fire Brigade Station (3)
- g Telford's Cabinet Factory

#### ST. JOHN'S WARD

- A Christian Brothers School
- B St. John's Church
- C St. John's Hospital
- D Grey Nuns, Belgium
- E St. John's Dispensary
- F Christian Brothers Convent
- G Artillery Barracks

#### MONTCALM WARD

- A H. G. G. Shoe Factory
- B St. Mathew's Church, Engl.
- C Fire Station (3)
- D Fire Brigade Station (3)
- E Catholic Market
- F St. Joseph's Asylum
- G Printing Bank
- H St. John's Hospital
- I Military School
- J Printing School
- K New Court
- L St. John's Monument

#### JACQUES CARTIER WARD

- A Fire Brigade Station (3)
- B New Market Hall
- C Christian Brothers School
- D St. Peter's Chapel, Engl.

#### BANLIEUE

- A General Hospital Convent
- B St. Lawrence Church, R.C.
- C St. John's School
- D Christian Brothers School

#### ST. ROCH'S WARD

- A General Hospital
- B Congregational Church (R.C.)
- C St. Roch's Church
- D St. Roch's Church
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- z St. Roch's Church

NOTE: All the figures A placed in this plan without the five alpha base this number and the place where they are to be found.

#### CHAMPLAIN WARD

- A St. Roch's Chapel, Protestant
- B St. Roch's Chapel, Protestant
- C Fire Brigade Station (3)
- D Police Station (3)
- E Office of Emigration of
- F Provincial Station and
- G St. Roch's Station
- H Ordinance Division (3)
- I Champlain Hall and
- J Market in the same
- K Building corner opposite
- L St. Roch's Station
- M Police Station (3)

SCALE

1/2 INCH = 100 FEET

1800

1700



### III. FUTURE PROSPECTS.

From the foregoing statement of facts, it will appear :—

1st. That the length of the Main Line of the North Shore Railway will be 160 miles ; and the length of the Piles Branch 30 miles, making an aggregate of 190 miles.

2nd. That the total cost of Construction and Equipment will be \$7,000,000, or an average of \$36,842 per mile.

3rd. That, of this amount, the City of Quebec will furnish \$1,000,000, or at the rate of \$5,263 per mile, the interest upon which at 7 per cent. is to be paid by the City, after the opening of the road from Quebec to Montreal.

4th. That the remaining \$6,000,000, or \$31,579, per mile, is to be provided by an issue of 7 per cent Mortgage Bonds, based and being a first lien upon the entire Railway and Franchises of the Company, together with the Two Million acres of Land donated to the Company by the Government.

It therefore becomes a question of the first importance, not only to the Railway Company, and the Contracting Parties who have undertaken to construct and equip the road ; but also to Capitalists who may invest in these securities, whether the City of Quebec will be able promptly to meet the liabilities which she has assumed in subscribing to One Million Dollars of the Capital Stock of the Railway Company ; and also, whether the net earnings of the Railway after completion, together with the proceeds of Two Million acres of Land granted by the Government, will be sufficient to provide for the prompt payment of both interest and principal, at maturity, of the Six Million

Dollars of Mortgage Bonds to be issued by the Railway Company.

#### SECURITIES OF THE CITY OF QUEBEC.

In discussing the value of the Securities of the City of Quebec, it is proper to remark that they are in no way dependant upon the financial success of the North Shore Railway, except so far as the future value of Property, and Resources of the City may become augmented by the completion and successful operation of the Railway.

The amount of Credit due to a Corporation of acknowledged integrity, is, like that of an Individual, governed by the amount of its Assets and Resources, as compared with its Liabilities.

The Harbor of Quebec can accommodate all the Commerce and Navies of the World. The St. Lawrence River and Gulf, leading from the Harbor to the Atlantic, is navigable with perfect safety, by the largest Vessels and Steamers that now or may hereafter float upon the Ocean; the Great-Eastern having passed and re-passed without difficulty, and laid several weeks at the Docks of Quebec.

The geographical position of Quebec is such, that, when the Great Trunk Lines of Railway, which are now rapidly converging towards her, are fully completed, her growth and prosperity will be increased to such an extent that she will very soon be known and acknowledged as one of the most important Commercial and Manufacturing Centres in America.

The City of Quebec is now, and will probably always remain, the Political Capital, and Seat of Government, of the Province of Quebec, in the Dominion of Canada.

The population of the City numbers Sixty Thousand.

From an examination of the last printed Report, of the Treasurer, to the Mayor of the City of Quebec, for 1870-71, it appears :

That the total Outstanding Debentures, Irredeemable Stock, and other Funded indebtedness of the City was.....	\$2,600,775	62
That the Floating indebtedness was .....	744,135	57
Making a total indebtedness of .....	<u>\$3,344,911</u>	<u>19</u>

And that the total Revenue for the fiscal year ending 30th April, 1871, from assessments, water rates, &c., was \$300,734.07.

The issue of the \$1,000,000 of " permanent consolidated stock certificates bearing seven per cent. interest," in payment of the subscription by the City, for that amount of the capital stock of the Railway Company, will therefore increase the Funded debt of the City to only \$3,600,775.62.

The Act of Parliament authorizing this subscription provides, " that to meet the payment of the interest on the amount of one million dollars so to be subscribed, the said Corporation of the City of Quebec, is hereby authorized to impose and levy, whenever required, upon the whole then assessable real property of the said City, a special rate of so many cents on the dollar, as shall be required, until the said interest shall be fully paid and discharged. "

When we consider the long established reputation of the City of Quebec for meeting all her obligations ; the capacity of her Harbor, and its facility of access to and from the Atlantic Ocean ; the present number of her population ; the future prospect of a very large increase in population, wealth and resources ; the small amount of present indebtedness ; and the strict provision made by law for the



payment of the interest on the securities to be issued to the Railway Company ; the conviction seems to be irresistible that these Securities should compare most favorably with those of any City in America, and that they should be considered, at least, "as good as GOLD."

#### SECURITIES OF THE RAILWAY COMPANY.

The computation of the present and prospective value of Railway Securities, necessarily differs, in some important respects, from a computation of the value of those of Municipalities ; for the reason that a different class, as well as a much greater variety of elements, must from the nature of the case, enter into the calculation. In one case, we can avail ourselves of facts and statistics, which are open to the public, and known to be reliable, as producing certain definite results ; while in the other case, we are often obliged to resort to data of a more speculative and uncertain character ; thereby arriving at conclusions, which, however logical they may appear, cannot be expected to carry with them the same conviction or weight, as they would if founded upon data more certain and reliable.

Engineers, and parties more immediately interested in the success of Railway enterprises, have, from their great zeal, and perhaps honest convictions, in many instances been known to place so low an estimate upon the first cost of the work, and so high an estimate upon its future earnings and success, that the enterprise has, but too often resulted in a complete commercial and financial failure.

It is for this reason that Capitalists very often hesitate to invest in Securities of this nature ; and it is on this account, that those upon whom the responsibility rests, of presenting Enterprises of undoubted merit to the financial world,

should endeavour to *under*, rather than *over*-estimate their future value and importance. I shall certainly seek to be guided by that principle in whatever Conclusions may be arrived at in this Report.

The ultimate value of the Securities of the Railway Company must, as a matter of course, depend upon the *net earnings* received from its local and through business, together with the *present and prospective value* of the Lands donated by the Government to the Company.

#### PROBABLE EARNINGS FROM LOCAL BUSINESS.

The *Local Business* that is naturally tributary to any Railway, which passes through a thickly populated Agricultural and Manufacturing Country, like that which lies along the North Shore of the St. Lawrence, between Quebec and Montreal, should, in my opinion, always be regarded as of far more importance; and be protected and encouraged with much greater care, than that which is generally termed *Through Business*, which is brought to the Road from points far beyond the reach of its own legitimate influences; and quite frequently, owing to competition with other Railways, or Water Communications, transported at a sacrifice rather than a profit.

Some idea of the extent to which this local business will at once, and at an increasing ratio for all time, contribute to the earnings and prosperity of the North Shore Railway, may be inferred from the following statement of facts. The accompanying Plan will also be found serviceable, as shewing the relations, which the different Localities referred to, bear to the Railway.

The City of Quebec, at the Eastern Terminus of the

Road, has a population of Sixty Thousand. There are in the City at the present time, one large India Rubber Manufactory; eight large Shoe Manufactories; forty-four Tanneries; two Iron Foundries; two Cabinet and Chair Factories; two Cement Factories; one Agricultural Implement Factory; two Breweries; together with a great variety of other Manufacturing Establishments, all of which at the date of the last Statistical Report, gave employment to 3,842 Mechanics and Laborers.

The average value of Imports, during the past five years, has been \$11,695,229 per annum. The average value of Exports, during the same period has been \$10,927,769 per annum.

The average value of Lumber exported from Quebec, during the past five years, has been \$8,958,530 per annum.

The average value of Flour and Grain which have been brought to the Quebec market, during the past five years, has been \$2,664,173 per annum.

The City of Quebec is situated practically, at the head of deep Ocean navigation upon the Gulf, and River St. Lawrence; and therefore, all heavy draft Vessels and Steamers, must necessarily receive and discharge their Cargoes and Passengers at this Port. So much of these as may be destined to the Interior, or the far West, must therefore be transferred, either to Vessels of lighter draft, or to such Railways as may at the time be running in the required direction.

The amount of Local Traffic, which a City of this magnitude and Commercial importance, will necessarily furnish to the Road, when completed, must be very large.

At the present time the only Avenues by which this immense traffic can be accommodated, are the St. Lawrence River, which is closed above Quebec, by Ice, about five

months in each year; and the Point Levis and Richmond branch of the Grand Trunk Railway, by which the distance from Quebec to Montreal is 172 miles, exclusive of the Ferry of over one mile, at Quebec.

The City of Montreal, at the Western Terminus of the Road, has a population of 118,000.

The amount of taxable property, within the City limits is \$37,933,808.

The average value of Imports, during the past five years, has been \$25,072,857 per annum.

The average value of Exports, during the same period, has been \$12,387,636 per annum.

The City of Montreal, being a central, as well as focal point, for the Grand Trunk Railway, and its present and proposed branches, or extensions; being also the terminus of one branch of the Vermont Central Railway; and also of the proposed Northern Colonization Railway, between Montreal and Ottawa; and being situated at the head of uninterrupted navigation upon the River St. Lawrence, during the summer months, has long, and very justly been regarded as the great Commercial Centre of Canada.

Without entering further into details respecting the enterprise and resources of a large and rapidly growing Commercial and Manufacturing City, so well known throughout the civilized world as Montreal, I think it will be admitted as self evident, that the *local*, or *home* business, which she will furnish to the North Shore Railway, when completed, will be very considerable.

The present Grand Trunk Railway line, from Montreal to Quebec; together with the St. Lawrence River, during the season of navigation, afford the only present means of transport for the local business of Mon-

treail ; and the large amount of Freight and Passengers which accumulate at that point from the South, West and North, during all seasons of the year, which are destined to points below Montreal, in the Great Valley of the St. Lawrence ; and if it can be demonstrated that the North Shore Railway, when completed, will afford superior advantages for this business, there can be no doubt that it will receive, at least its proper proportion.

The Country lying upon the North Shore of the St. Lawrence, between Quebec and Montreal, is exceedingly rich in Agricultural, Manufacturing and Mineral resources. The Farming lands, extending from the River back to the Forests, a distance of from twenty to fifty miles ; and embracing about 2,708,840 acres. are now and have for more than a Century past, been under a high state of Cultivation, producing the finest crops of Hay ; Oats ; Wheat ; Corn ; Barley ; Peas ; Potatoes ; etc., in great abundance.

As a Grazing country it is unsurpassed.

The present population is something over 220,000.

There are twenty-six large Saw Mills in operation, within easy reach of the line, manufacturing 340,000,000 feet Board measure per annum, of Merchantable Lumber.

There are also four large Furnaces, which, although being worked at their minimum capacity, turn out 8,000 tons of Iron annually.

There are also, one large Foundry ; two large Woolen Manufacturies ; three large Machine Shops ; one Nail Factory ; three large Flouring Mills ; one Paper Mill ; and three large Tanneries ; all in successful operation, along, and in the immediate vicinity of the line of the Railway.

The City of Three Rivers, situated about midway between Quebec and Montreal, and at the junction of the

Piles Branch with the Main Line of the Railway, has a population of about 9,000; and is rapidly increasing both in population, and importance as a Commercial and Manufacturing Centre.

The Dry Goods Merchants, Grocers, and Iron Merchants of this City import goods to the amount of \$900,000 annually; and one Fur dealer exports annually to the United States, furs to the value of \$130,000. During the last season, there were shipped from this City, over the Branch of the Grand Trunk Railway, extending from a point opposite Three Rivers to Arthabaska, for Boston and other markets in the United States, 3,600 tons of Hay, and 75,000 bushels of Oats.

At intervals of from seven to nine miles, all along the line, are situated fine and growing Parish Villages, many of which, like Lorette; Ste. Jeanne de Neuville; Cap Santé; Ste Anne; River du Loup; Berthier; l'Assomption; l'Epiphanie; &c., &c.; are already industrial centres of considerable importance; and with the stimulant afforded by a Railway passing through or near them, they will rapidly increase, and contribute very materially to the earnings of the Road.

The Town of Joliette, situated upon L'Assomption River, about eleven miles North of the Railway, has a population of over 3,000; and has already become of so much importance, on account of its Water Power, &c., that a Railway has been constructed, for the accomodation of its business, to Lanoraie, on the St. Lawrence, which will become a very important feeder to the North Shore Railway.

The St. Léon Mineral Springs, situated about four miles from the Railway, near the River du Loup, in Maskinongé County, have for many years been a popular summer resort for persons in search of pleasure and health. There

are now about two thousand inhabitants in the Village ; and two large Hotels are being constructed for the accommodation of visitors.

The continuous, and almost incalculable area of the finest Timber Lands in the World, which bound the Northern limits of the Country above described ; and lie within a short distance from the Railway, will, in all probability, and during many years to come, furnish an amount of Tonnage for the Road, which will prove more productive to the Company, than that which is collected in the settled portion of the Country through which the Railway is to pass.

The numerous Streams which flow through and from all parts of these Timber Lands, across the Railway, and into the St. Lawrence, are well supplied with Water Powers ; and every facility is therefore afforded for driving the logs, and manufacturing the lumber, either directly upon the line of the Road ; or at such points above, as may be selected for their greater economy and convenience. This lumber, when so manufactured will bear transportation by Rail, either to the markets of the United States *via* Montreal ; or to Quebec, for the markets of Europe, at rates that will prove to be highly remunerative, both to the Railway Company, and to the owners of the Lumber.

The finest qualities of Maple, Birch, and other varieties of Hard Wood, abound in these Forests ; and they have, for many years, been regarded as a valuable article of Export to Foreign Countries.

These Forests will also furnish an unlimited amount of Fire Wood, which, from its proximity to the Railway ; and the great and constantly increasing demand for fuel in the Cities of Quebec, Montreal, and at intermediate points

along the line, will bear transportation at very fair paying rates.

Iron Ore, and its great variety of products, will also furnish an important item of Transport. The Country along the line, between Quebec and Montreal, abounds, at frequent intervals, with the richest qualities of *Limonite*, or *Bog Ores* ; and the reduction of these Ores has been carried on successfully, at several points near the route, for more than a Century.

The Extract from the Report of Sir William E. Logan, upon the "Geological Survey of Canada" dated in 1863, to be found in the Appendix, will show the estimate placed upon the extent and value of these Ores, by that eminent authority.

With the North Shore Railway completed through the Centre of this iron region, having short lateral branches to connect it with the different ore beds and furnaces, there can be no doubt that there will be a great demand for its transportation to the ready markets of Quebec, Three Rivers, Montreal, and probably to more distant points.

The Piles Branch will undoubtedly prove a most important feeder to the Main Line at Three Rivers ; and I have no doubt that it will eventually pay very handsomely as an investment by itself. There is a very fine Water Power upon the St. Maurice River, immediately at the terminus of the Branch at Grand Piles, where the Pine, and other valuable timbers which cover the immense Territory drained by the St. Maurice, can be manufactured, and placed directly upon the Cars, for transport to Quebec, Montreal, or any point in the United States, without transshipment.

Saw Logs, sufficient to produce 200,000,000 feet Board



Measure of Lumber annually, are now driven down the St. Maurice, past the Grand Piles, to supply the mills at Three Rivers, and other points on the St. Lawrence ; and there can be no good reason why these logs should not be manufactured at the Piles ; and the lumber transported thence by Railway, thus saving the cost and risk of driving over the falls and rapids, and booming at the mouth of the River.

The still water, extending Seventy miles above the Piles, affords the best possible facility for holding and assorting these logs ; and the want of this convenience, or rather necessity, is often a very great draw-back to the success of large Lumber Manufacturing Establishments.

Remarkable facilities will also be afforded, at the Grand Piles, for Collecting and Shipping by Rail, the valuable Hard Woods of the St. Maurice Forests, which cannot be floated, or transported to advantage in any other way.

The transportation of lumber-men, and their supplies, by means of the Branch Railway, and the Steamer upon the St. Maurice, into the very heart of this vast lumber region, will also afford a large amount of tonnage ; and it is not at all improbable that, at no distant day, this Branch will be extended to Lake St. John, at the head of the Saguenay.

The Ore beds, Furnaces and Forges located in the Valley of the St. Maurice, in the immediate vicinity of the Piles Branch, will also add very materially to its revenue.

The Belt of settled Country, lying upon the South Shore of the St. Lawrence River, between Quebec and Montreal, will, particularly during the Winter months, afford a large and paying business to the road. The population of this district, numbers about 100,000 ; and there are several fine

Villages located along the River, the principal one, Sorel, containing 5,636 inhabitants.

This Country is entirely isolated from the Grand Trunk Railway, and its only avenue to market is the River, during the season of navigation. Ferries, communicating with the North Shore, have already been established at several points; and, during the Winter, the Ice Bridge, which nature never fails to construct, will render the communication still more convenient; so that the construction of the North Shore Railway is looked for, with almost as much solicitude, by these Inhabitants, as it is by those residing upon the North Shore of the St. Lawrence.

The RICHELIEU COMPANY has, for several years past, been running a night line of Magnificent Steamers, between Quebec and Montreal, during the season of navigation. These Steamers stop at Batiscan and Three Rivers, upon the North Shore, and Sorel upon the South Shore of the St. Lawrence. They also have several other Steamers, of a smaller class, running between Montreal, Berthier, Sorel, Three Rivers, and other points.

The gross earnings of the Richelieu Company, during the season of 1871, were ..... \$436,974 89

The current expenses were..... 297,505 86

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Leaving a profit of..... \$139,569 03

This appears to be a very handsome Percentage upon its Capital Stock of \$500,000.

The foregoing statement of the present Natural and Industrial Resources of the Country, through which the North Shore Railway is to pass, is based upon facts as they are

known to exist ; and it is from these data that an approximate estimate is to be made of the probable earnings of the Railway from its *Local Business*.

In preparing this Estimate, I can but feel quite justified in assuming, that the business of the Main Line will require the running of at least the following number of Trains, daily in each direction, over the Railway between Quebec and Montreal :—

1. One Express Passenger Train, composed of one Baggage car, two ordinary Passenger cars, and one Drawing-room car.
2. One Way Passenger and Mail Train, composed of one Baggage car, one Mail and Express car, and two ordinary Passenger cars.
3. One Mixed Passenger and Freight Train, composed of one Baggage car, two Second Class, or Emigrant cars, and ten Freight cars.
4. One Freight Train, composed of twenty Freight cars.

It is further assumed, that these Trains will be loaded respectively, and at rates, averaging as follows :

No. 1. Equal to 100 through Passengers in each direction, at the rate of \$3.50 each	\$ 700.00
No. 2. Equal to 80 through Passengers in each direction, at the rate of \$4.00 each	640.00
No. 3. Equal to 50 through 2nd class Passengers in each direction, at the rate of \$2.00 each.....	200 00
Also, 100 tons of Fast or Express freight in each direction, at the rate of \$5.00 per ton.....	1,000.00

No 4 Equal to 200 tons of freight in each direction, at the rate of \$4.00 per ton	1,600.00
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Making a total for the Main Line of.....	\$ 4,140.00
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For the Piles Branch, I will assume that one Mixed Train will be required daily, in each direction, to be composed of one Baggage car, one Passenger car, and twenty Freight cars; and that each train will transport equal to 50 through Passengers in each direction, at \$1.00 each.....\$100.00

And equal to 200 tons of through freight in each direction, at \$1.00 per ton .....	400.00
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Making a total for the Piles Branch of...	500.00
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Making an aggregate to represent the Gross daily Earnings of the entire Railway, from its local business alone, of.....	\$4,640.00
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This amount being multiplied into 313, the number of working days in the year, will produce an aggregate to represent the estimated Gross Earnings from the <i>Local Business</i> , per annum, of.....	\$1,452,320
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#### PROBABLE EARNINGS FROM THROUGH BUSINESS.

Inasmuch as the foregoing Estimate of the Local business of the Railway, includes that which now exists, and naturally *centers* within the limits of Quebec, Montreal, and the intervening Country through which the Railway

is to pass ; it will be proper to include in the estimate of Through business, only such as may be brought within the influence of the Road, from points beyond, or outside of these localities, either by means of Communications which now exist, or those whose construction in the immediate future, is rendered quite certain.

A reference to the accompanying Map will show, that among those which now exist, and will exercise an immediate influence upon the through business centering at the Eastern terminus of the Road at Quebec, are the River St. Lawrence ; and the branch of the Grand Trunk Railway extending from Point Levis, opposite Quebec, to River du Loup, a distance to 130 miles.

The lower Harbor of Quebec, and the River and Gulf of St. Lawrence below that point, are not obstructed by ice, during the winter months, to such an extent as to impede Steam Navigation, oftener than perhaps once in twenty-five or thirty years. Ocean Steamers may therefore as a general rule, arrive at, and depart from Quebec, every day in the year, so soon as an amount of business accumulates there, sufficiently large to make it an object for them to do so.

That portion of the Grand Trunk Line, extending from Quebec to Richmond, and Lennoxville ; and thence by other lines, *via* Lake Memphramagog and White River Junction, to Boston, Newport, New-Haven and New-York, may also be regarded as an important avenue for Trade and Travel, between Quebec, and the above named Points.

Among those whose construction has already commenced, and whose completion may therefore be regarded as reasonably or quite certain, are the Intercolonial Railway, extending from a Junction with the Grand Trunk Railway, at River du Loup, to Halifax, a distance of 555 miles ;

making the entire distance from Quebec to Halifax, by this route 685 miles.

Another route, the construction of which is already quite far advanced, is a Railway leading from Point Levis opposite Quebec, directly across the Country, through Maine, in the direction of St. Johns, New Brunswick ; with branches to Portland, Bangor and Halifax. By this route the distance from Quebec to Portland will be 40 miles less than by the Grand Trunk Railway ; and 230 miles less to Halifax, than by the Intercolonial Railway.

A Railway extending from Quebec, in a northerly direction, to Lake St. John, at the head of the Saguenay, a distance of 140 miles, has also been commenced, and about 27 miles completed and equipped. This Road has a land grant from the Government of 1,200,000 acres of timbered lands, through which it is to pass.

The City of Montreal, at the Western Terminus of the Railway, as has already been remarked, is acknowledged to be the great Commercial Center of Canada.

The Grand Trunk Railway, extending to Portland, on the Atlantic ; and to Sarnia, on the Great Western Lakes, affords easy access by Rail to the extreme East and West ; while the Vermont Central, and Lake Champlain afford the same facilities towards the South

The St. Lawrence River, during the season of navigation, also affords extraordinary facilities for the transport of both Freight and Passengers in either direction.

Such of these avenues as approach Montreal from the East cannot, as a matter of course, be expected to add materially to the business of the North Shore Railway ; but from those approaching it from the South and West, it is expected

that a very considerable amount of Through Business destined to the North and East, will be afforded to this Road.

The principal Railway which is now in contemplation to extend Westerly from Montreal, is the "Northern Colonization Railway," which is to extend from Montreal, directly up the Valley of the Ottawa River, a distance of 120 miles, to the City of Ottawa, the Capital of the Dominion of Canada.

That Company has a land grant of 10,000 acres per mile from the Government ; and is about to receive a subscription of \$1,000,000 to its Capital Stock, from the City of Montreal. It is expecting also a large amount of subscriptions from the Municipalities along the line.

The law granting the above amount of lands to that Company, provides, that, "The said Railway shall connect with the said North Shore Railway, from Quebec to Montreal, at such point as shall be determined by the Lieutenant Governor in Council."

There can be no doubt that, when these two Roads shall have been completed, they will not only run from the same Depot in Montreal ; but that they will also be connected upon the North side of the Ottawa River, about fifteen miles north of the City of Montreal, by a link or branch that shall form an unbroken line, of uniform gauge, directly from Quebec to Ottawa, making the entire distance only 253 miles ; whereas by the present route, via the Grand Trunk Railway to Montreal and Prescott, the distance is 338 miles ; thus effecting a saving of 85 miles between these important Points.

A line is also about to be constructed from Ottawa direct to Toronto, which, in connection with the Northern Colonization, and North Shore Railways, will shorten the distance between Toronto and Quebec, as compared with

the distance *via* the Grand Trunk Railway, about 25 miles ; and a glance at the Map will show that Quebec, Ottawa, Port-Huron and Chicago, are nearly in the same Air Line.

From Toronto to Collingwood, on the Georgian Bay, the Northern Railway of Canada, has been in successful operation for several years. The length of this Road is 94 miles. The distance from Toronto *via* Ottawa, to Quebec, by the roads already projected, will be about 481 miles ; making the total distance from Collingwood to Quebec, 574 miles, as against 599 miles by the Northern Central and Grand Trunk lines.

Collingwood is now, and will continue to be a most favorable point for the transshipment of Wheat and Flour from vessels to cars, by which it can be transported, without breaking bulk, to Quebec, and there placed directly on board Ships, for transportation to Foreign Markets.

The Canada Central Railway is also under construction from Ottawa to the Sault Ste. Marie, at which point the line will connect with the Northern Pacific Railway of the United States, thus forming a very direct line from Quebec to the Pacific Ocean at Puget Sound. A Branch is also to be constructed to the nearest point on the Georgian Bay, which will shorten the distance materially from that important point to Ottawa and Quebec.

A connection will also be made at Ottawa or some point farther West, with the Great Canada Pacific Railway, the Surveys for which are now being rapidly prosecuted by the Dominion Government.

The North Shore Railway is therefore destined, at no distant day, to become the Eastern terminal link in the Great Northern line of Railways, of a uniform gauge, which will connect the tide waters, and deep sea naviga-



tion of the Atlantic, not only with the Great Western Lakes; but also with the Pacific Ocean, by several hundred miles the shortest route, across the American Continent. And there can be no doubt that the immense traffic which will naturally flow in this direction, destined to the New England States, and to the Harbors of Portland, St. Johns and Halifax, will eventually create the necessity for a Railway Tunnel or Bridge across the St. Lawrence River, at the most practicable point near the city of Quebec.

The present mania for consolidating, and bringing under one management, the main trunk lines of Railway which lead from the producing districts of the West, to the great Commercial and Shipping Centers of the East, has rendered it not only highly *expedient*, but, in the opinion of many Capitalists and Railway Managers, absolutely *necessary* that the different parts or links which make up the entire chain, should be of one *uniform* and *unbroken* gauge, so that no transfer, either of freight or passengers, will be required at unimportant points along the line.

In this respect the North Shore, and other Railways which form this great Northern route from the Atlantic to the Great Lakes, and the Pacific Ocean, with the uniform gauge of 4 ft. 8½ inches, will enjoy an enviable position, as compared with the Grand Trunk line of Canada, or the more Southern routes of the United States.

Trade and Commerce, like running waters, and blood in the animal system, will always seek to flow through the great Arteries, or Channels, which nature has provided for them, until they reach the great Commercial Centers of the Civilized World. These Centers are now to be found in Europe; and the *shortest* and *cheapest* modes of

Transport for the great staples, Wheat, Corn, Flour and Lumber, which grow, and can be produced in such great profusion, in the Western United States, and Canada, will eventually prove to be the most successful.

The Valley of the St. Lawrence, is the natural outlet for all this traffic lying north of the Valleys of the Hudson, the Ohio and the Mississippi Rivers, and their Tributaries. The great chain of Lakes, from Superior to Ontario, flow through this Valley to the Ocean; and so, when Capital and Enterprise shall have prepared the way, will Commerce take the same direction.

The Cities of New-York, Philadelphia, Baltimore, Boston and Portland, were comparatively of no importance, until the Erie Canal, and the Railway lines, which now radiate in every possible direction from them, were completed; thus causing a diversion from this Valley, by artificial means, of the immense trade to and from the Great West.

The DOMINION OF CANADA which controls, to a great extent, this Valley of the St. Lawrence, has, from political, or other causes, which it would be improper to discuss here, been behind her neighbor, the UNITED STATES, in making such Improvements as would prevent the diversion of this great source of wealth and prosperity from the avenue which nature seems originally to have designed for it; and hence the ancient City of Quebec, so long famous in song and story; and other natural centers of Commerce, have been allowed to remain almost stationary, during the past half Century.

But a new Era seems now to be dawning upon the DOMINION; and the great importance of these works of Internal Improvement, seems to be rapidly developing itself in the minds of both Government, and People.

It will not be long, therefore, before her Great Thoroughfares are completed ; and the largest Vessels and Steamers that can successfully navigate the Ocean, will be seen, daily, loading and unloading their immense burthens of Freight, and Passengers, which are destined for the Interior of Canada and the United States, at the Wharves of Quebec.

Even during the last year, the number of steerage passengers transported by the Richelieu Company, between Quebec and Montreal, was about 38,000.

The very great increase, during the past few years, in Travel, seeking health and recreation in the cool summer climate of Quebec, the lower St. Lawrence, and the wild Scenery of the Saguenay, and Ha! Ha! Bay, affords strong promise of a large accession of through business to the Railway from that source.

The Arrivals at the justly Celebrated "RUSSELL'S ST. LOUIS HOTEL" in the City of Quebec, during the months of June, July, August September and October, 1871, numbered 9,909. During the month of August alone, the amount amounted to 3,940. And the annual increase in arrivals has been about 30 p. ct. during the past five years.

The Steamers of the Richelieu Company transported about 26,500 Cabin Passengers, between Montreal and Quebec during the last year.

And the large Steamers plying upon the lower St. Lawrence, between Quebec and the Saguenay, during the travelling season, were crowded to such an extent, that it was sometimes necessary for Passengers to secure quarters a week in advance.

Taking into view all the foregoing facts, and considerations, it would certainly seem but reasonable to anticipate,

that the through business of the Railway will be equal, at least, to the local traffic that will come upon it. But, to be largely within the limits of safety, I will assume, that the gross earnings from this source, will be only 50 per cent. of those estimated for the local traffic.

Assuming this as a basis, we shall have the following results :

Gross earnings per year from local business.....	\$ 1,452,320
Gross earnings per year from through business, 50 per cent of local .....	726,160
Transportation of Mails, say.....	20,000
Total gross earnings per year.....	<u>\$ 2,198,480</u>

From which must be deducted the annual transportation and other expenses, of the Railway Company, in order to arrive at the annual *net receipts*.

Referring again to the Ogdensburgh and Lake Champlain Railroad, as being a fair and proper Standard by which to judge, not only the comparative cost of the North Shore Railway, but also the ratio that may be expected to exist between its gross earnings and net receipts ; I find :

That the total receipts upon that Road for the fiscal year ending Sept. 30th, 1870, were \$1,051,413,10

That the total expenses during the same period were as follows :

For Maintaining the Road, or Real Estate of the Corporation.....	\$ 236,413,34
For Repairs to Machinery.....	110,974,02
For Operating the Road....	299,094,32
Total Expenses.....	<u>\$ 646,481,68</u>
Balance to represent net earnings..... ..	<u>\$ 404,931,42</u>

The ratio which this amount of net earnings bears to the total receipts, is  $38\frac{1}{2}$  per cent.

By applying this ratio of  $38\frac{1}{2}$  per cent to the total estimated earnings of the North Shore Railway, we have a total of *annual net earnings* amounting to..... \$ 846,414,80

This amount will be the interest at 7 per cent on a Capital of..... \$ 12,091,640

My honest convictions are, that the foregoing Estimate is the *Minimum* that can, with any degree of propriety, be placed upon the annual earnings of the Road, during the first year after its completion. After that period, I am satisfied, from the experience of other Railways, that these earnings will be increased in the ratio of at least 10 per cent. per annum, until they shall have reached a *Maximum* of 100 per cent. above the amount of the present Estimate.

If it should be thought, however, by cautious Capitalists, that, from any cause, or possible contingency, the above Estimate is larger than the facts bearing upon the subject may prove to warrant, they may reduce the Estimate of net earnings, 50 *per cent.*, and they will still be sufficiently large to pay the interest at 7 per cent. upon the \$6,000,000 Mortgage Bonds of the Railway Company.

In corroboration of the views herein expressed, with reference to the future resources, and probable earnings of the North Shore Railway, I beg leave respectfully to refer to the Letter, which will be found in the Appendix, addressed to the Hon. Joseph Cauchon, President of the Railway Company, and also President of the Dominion Senate, by

Hon. John Young, formerly Minister of Public Works, and late President of the Dominion Board of Trade.

This letter will show the Estimate placed upon the present importance, and future financial success of this Enterprise, by one of the most far seeing and enlightened men in Canada; whose opinions have very justly come to be regarded, both in America and Europe, as the most reliable authority that can be obtained upon subjects of this nature.

I would also respectfully refer to the Letter, which will be found in the Appendix, from Hon. W. Marsden, M.A., M.D., &c., &c., of Quebec, whose long familiarity and enlightened views with reference to the Trade and Resources of the City of Quebec, the Valley of the St. Lawrence, and the Dominion of Canada, entitle his opinions upon this subject to very great weight.

An extract will also be found in the Appendix, from a Report recently made by Mr. Sandford Fleming, Engineer in Chief of the Canadian Pacific Railway, which contains some valuable information respecting the general features of that route as compared with those already constructed, and in progress, in the United States.

#### VALUE OF THE LANDS DONATED BY GOVERNMENT.

It has been stated that the Lands granted by the Government in aid of the Railway, amount to Two Million acres; and that they are located in four separate Blocks or Parcels, which are particularly described in the Act of Parliament making the grant.

An examination of the accompanying Map will show the relative position, and the quantity of land contained in each Block.

For convenient reference, the following tabular statement has been prepared, showing the total quantity in each Block; and the undivided portion in each, that will belong to the North Shore Railway Company, when their Railway is completed.

Designation of Block.	Total quantity in acres.	Undivided portion to the N. S. Railway.	Official Remarks.
Block A .....	1,827,400	1,140,875	Pine country.
Block B.....	319,440	199,431	Well timbered.
Block C.....	371,200	231,744	Do.
Block D.....	685,460	427,950	{ Pine, Spruce & Tan. Oak.
Total.....	* 3,203,500	2,000,000	.....

\* This amount has been erroneously printed in the Law as being 3,208,500 acres.

In order to present to the mind some idea of the extent of this land grant, it may not be improper to state, that if the area of 2,000,000 acres were reduced to a parallelogram of one mile in width, it would extend 3.125 miles in length, or more than *one ninth* of the circumference of the Earth. If reduced to a square, it would be bounded by four equal sides of a little more than 55 miles in length.

The question as to the *Value of Timber Lands*, not being a strictly Engineering one, I trust that I may be pardoned for any unusual degree of awkwardness that may be exhibited in its discussion.

In ordinary trading parlance, an article of traffic is considered to be worth just what it will bring in Market.

I have heard repeated offers for these lands made to the Company, by responsible parties, of \$2 per acre. Hence I conclude that \$4,000,000 for the 2,000,000 acres, may safely

be regarded as their *minimum* value at the present time.

I know of several parties of undoubted responsibility, and who profess to know much more about these lands than I who have not seen, can know of them, who would be very glad to enter into a contract with the Company, and to give satisfactory security, that they will pay \$3 per acre for them, on or before the maturity of the Railway Company's Mortgage Bonds. Hence I conclude that within the next twenty years, they will be worth at least \$6,000,000.

The Honorable John Young, than whom perhaps no better authority exists, as to the general value of well timbered lands, situated as these are, within easy reach of the market; says in the letter before referred to, which will be found in the Appendix: "From my knowledge of the matter it will be safe to consider that *Four dollars* per acre would be a very moderate estimate of their value." And his reasons for this opinion are given with great force.

I do not understand, however, that the Company has any intention, at the present time, to dispose of these lands; but, on the contrary, that it desires to retain them; and to avail itself of any increased future value that time and circumstances may give to them.

In the mean time, it is desirable to know to what extent they, or the credit that may be justly derived from them, may be used with safety, to aid in the construction of the Railway, upon which the grant is predicated by the Government.

It is a notorious, as well as somewhat melancholy fact, that *first-growth, well-timbered Pine Lands*, are very rapidly disappearing from the face of the Earth; and that the sturdy growth of stately trees which now covers them will never be replaced.



If a Map of the World could be dotted with the areas now covered by these Forests, they would appear so small when compared with the remaining portion of the Earth's surface, that it would almost require a Microscope to discover them. And yet, but a century or two ago, they undoubtedly occupied much the largest portion of the American Continent. Like the "Red Man of the Forest," they are disappearing before the rapid advances of Civilization, to return, NEVER-MORE !!

Hence it is that the Owners of the largest Lumber Manufacturing Establishments, in the United States and Canada, having Millions of Dollars invested in the business, are constantly reaching forward into the future, and securing these unoccupied Tracts of timber lands, which will become so invaluable to them hereafter.

The Canadian Government has, for many years past, adopted the Policy of granting *Licenses* for cutting and removing the timber from her Forests; and has received a large annual revenue from that source.

The Commissioner of Crown Lands, in his last Report says, that the revenue derived by the Government from this source, during the past four years, has been as follows :

For the year ending, 30th June, 1868.	\$195,115,96
“ “ “ “ 1869.	331,752.12
“ “ “ “ 1870.	362,868,02
“ “ “ “ 1871.	406,480,51

Which shows a ratio of increase, equal to about 25 per cent. annually.

In a Report more recently furnished by Mr A. J. Russell, Crown Timber Agent of the Province of Quebec, for the Upper Ottawa District, which embraces the lands in Block "A" before referred to, the following statement appears :

" To Exhibit, approximately, the rapid increase of the Ottawa lumber trade, I may state, that the revenue from my Agency is rapidly increasing. It was but a little over \$200,000 annually ten years ago, while last year it amounted to \$565,007.14. "

From the foregoing official statements, it would appear that the Company might, if it should be deemed expedient to do so, realize a very handsome annual revenue from the timber product of these lands, by granting Licenses in the manner adopted by the Government. But I should very much doubt the Policy of doing so, even if the revenue so to be derived would be equal to the annual interest upon its Mortgage Bonds.

A glance at the Map will show that the numerous Streams which flow through all parts of these lands, and run thence into the Ottawa, or St. Lawrence River, afford the most ample facilities, either for manufacturing the lumber on the spot; or for driving the timber and logs to Market, previous to being manufactured.

During the debate in Parliament upon the Act granting the 3,203,500 acres of lands to the North Shore, and the Northern Colonization Railways, it was stated by the Premier, and by the Commissioner of Crown Lands, that they constituted the *best timbered lands* at that time unlicensed and owned by the Government; and that no timber had ever been cut from them; and also, " that these lands are of great value in consequence of the timber upon them; and that they will, if properly administered, enable the Company to construct the Railway, without the aid of subsidies from Municipalities."

The above lands, together with 1,200,000 acres granted in aid of the Railway from Quebec to Lake St. John, amounting to an aggregate of 4,503,500 acres, are the

only lands that have been granted by the Government, in aid of Railways, upon the North side of the Ottawa and St. Lawrence Rivers ; and it is not probable that any further grants of a similar character will be made in the future.

It will probably be the policy of these Railway Companies, as it certainly is of the North Shore Railway Company, to mortgage those lands in connection with their Railways, in order to procure the means with which to construct their Roads ; and to keep the timber upon them *intact*, until the maturity of their Bonds.

In the mean time, the great and constantly increasing demands of the lumbering interests of the country, will compel the Government to grant Licenses for nearly all the available timber lands in the Province ; so that, at the expiration of twenty years, or at the maturity of the Bonds, the timber upon the lands thus held by the Railway Companies, will command almost any price that may be asked for it.

It should also be borne in mind, that, after the valuable timber is removed from these lands, by far the greatest portion of them will be susceptible of cultivation ; and that, in all probability, they will bring from one to five dollars per acre, according to quality and location, for that purpose.

Manufacturing Towns and Villages will also spring up in the Valleys, and along the numerous Streams that flow through them ; and the extensive Water Powers, which occur so often upon these Streams, will eventually be utilized ; which, together with the cultivation of the soil, and the raising of stock, will furnish employment to a numerous and hardy Population.

Taking into consideration, therefore, the growing scarcity of valuable Pine and other Timbered Lands, not only throughout the World; but upon the American Continent; and even in the Dominion of Canada, where they were formerly supposed to be almost inexhaustible; the present availability of these lands for the realization of a large and rapidly increasing revenue, by the sale of their timber product; their future value for Agricultural, Grazing and Manufacturing purposes; and the fact, that, after the expiration of twenty years, or at the maturity of the Mortgage Bonds of the Company, they will be almost the only available Timbered Lands remaining upon the North side of the St. Lawrence and Ottawa Rivers, I am forced to the conclusion, that their present value to the Company should not be estimated at less than \$5 per acre; or a total of \$10,000,000.

#### IV. CONCLUSIONS.

For convenient reference, the following brief *Summary* is submitted, showing the principal Facts stated ; the Conclusions arrived at ; and the Inferences to be drawn from the foregoing Report.

*First.*—The *Legal Status* of the North Shore Railway Company is perfect and unquestionable ; affording every protection to the holders of the Stock and Bonds of the Railway Company.

*Second.*—The Province of Quebec, has granted to the Railway Company 2,000,000 acres of valuable *Timber Lands*, in aid of the Construction of the Railway.

*Third.*—The City of Quebec has subscribed \$1,000,000 to the Capital Stock of the Railway Company, for which the Company receives 7 *pr. ct.* *Irredeemable Stock Certificates*, of the City.

*Fourth.*—The *Length* of the Main Line of the North Shore Railway, from Quebec to Montreal, will not exceed 160 miles ; and the length of the Piles Branch, from Three Rivers to the Grand Piles, will not exceed 30 miles ; making an *Aggregate length* not exceeding 190 miles of Railway.

*Fifth.*—The *Alignment* and *Gradients* are most favorable for the transaction of a large and heavy Passenger and Freight business ; and the Road will be so constructed that the passage of trains in winter, will meet with very little if any obstruction from *Snow*.

*Sixth.*—The Railway, both in the manner of its Construction, and character of its Equipment, and other Appurtenances, will be *First-Class* in every respect.

*Seventh.*—The *Total Cost* of the Railway, Equipment, and Appurtenances, including all Contingencies, will be \$7,000,000, or at the rate of \$36,842 per mile.

*Eighth.*—The Cost will compare most favorably with that of any similar Railway, either in the United States or Canada.

*Ninth.*—The Contracting Company is to receive \$1,000,000 in the Irredeemable Stock of the City of Quebec, drawing 7 per cent. interest; and \$6,000,000 in the Mortgage Bonds of the Railway Company, drawing 7 per cent. interest; and having not less than twenty years to run; based, and being a first lien upon the Railway and Franchises of the Company; and also upon the 2,000,000 acres of Lands, donated to the Company, by the Canadian Government.

*Tenth.*—Upon the completion of the Railway, the Company will have *no floating debt*; and will probably be able to commence business with a *half million dollars* in the Treasury.

*Eleventh.*—The North Shore Railway and all its Westward, and probable Eastward connections, will have an *unbroken gauge of Four feet Eight and a half inches*.

*Twelfth.*—The value of the Securities of the City of Quebec, is equal to *Par*, in GOLD.

*Thirteenth.*—The probable *Net Earnings* of the Railway, from its local and through business, during the first year, will amount to \$846,414.80; being equal to the interest at 7 per cent. upon a capital of \$12,091,640. And they will probably increase at the rate of 10 per cent. per annum thereafter.

*Fourteenth.*—If the estimated net earnings of the Railway during the first year, are *reduced 50 per cent.* they will

pay the interest upon the \$6,000,000 Mortgage Bonds of the Company.

*Fifteenth.*—The 2,000,000 acres of Timber Land, granted by the Canadian Government, are worth to the Railway Company, at least \$5 per acre ; or *an aggregate of* \$10,000,000.

*Sixteenth.*—The *Railway and Franchises* of the Company, *independent* of the Lands granted by the Government, afford an *unquestionable security* for the payment of the *Interest* upon the Mortgage Bonds of the Company ; together with a *reasonable security* for the payment of the *Principal*, at maturity.

*Seventeenth.*—The *Lands* granted by the Government, *independent* of the Railway and Franchises of the Company, afford an *unquestionable security* for the payment of the *Principal* upon the Mortgage Bonds of the Company at maturity ; together with a *reasonable security* for the payment of the annual interest upon the Bonds.

*Eighteenth.*—Consequently, the Railway and Franchises of the Company, *Combined* with the Lands granted by the Government, afford an *Unquestionable Security* for the payment of both the *Interest* and *Principal* of the Bonds of the Railway Company ; AND THEREFORE ESTABLISH A BASIS FOR A LOAN OF \$6,000,000, WHICH IS NOT EXCELLED IN VALUE BY ANY SECURITY OF THE KIND EVER OFFERED IN THE AMERICAN OR FOREIGN MARKETS.

Respectfully Submitted,

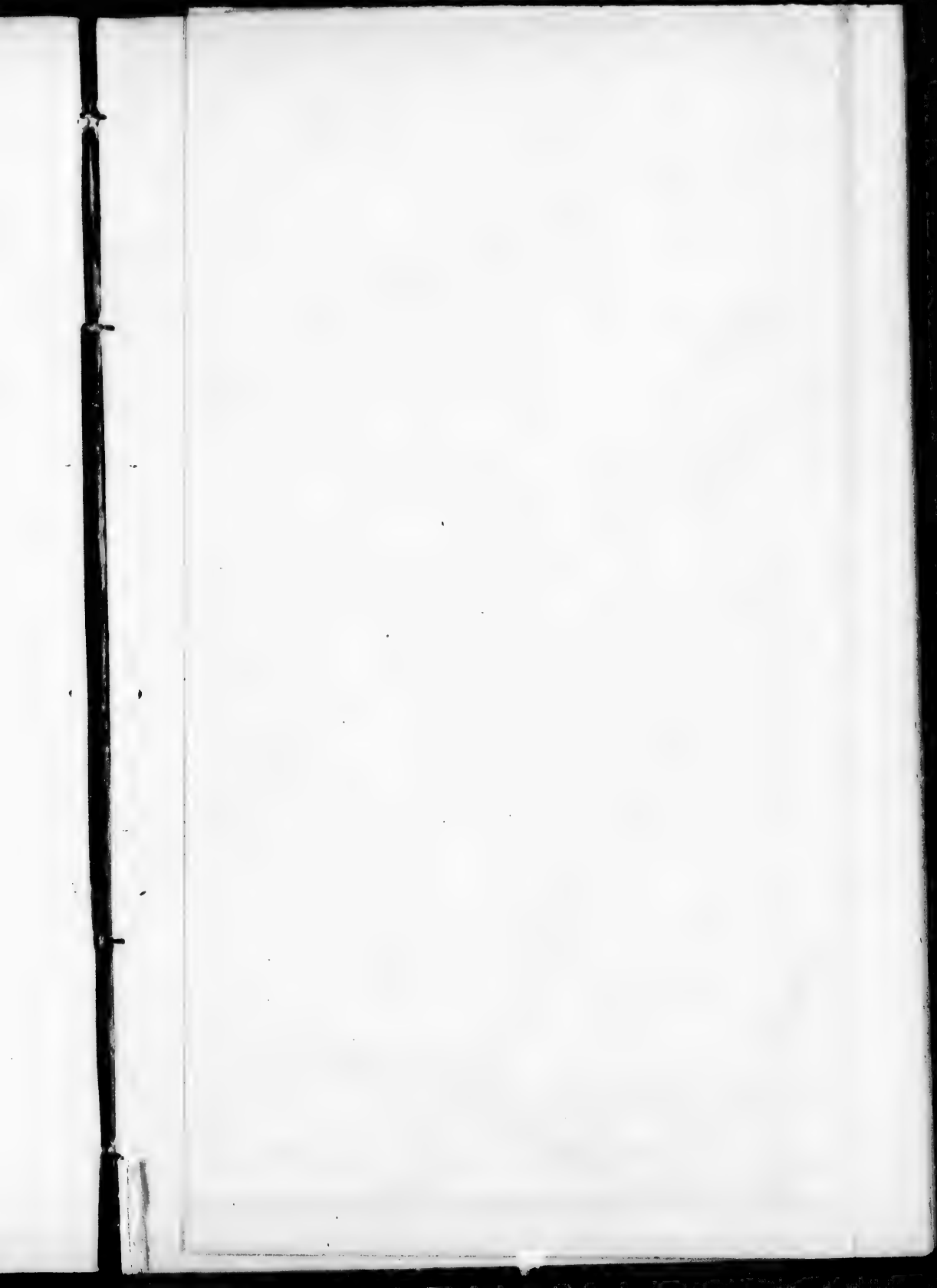
SILAS SEYMOUR,

Engineer in Chief.

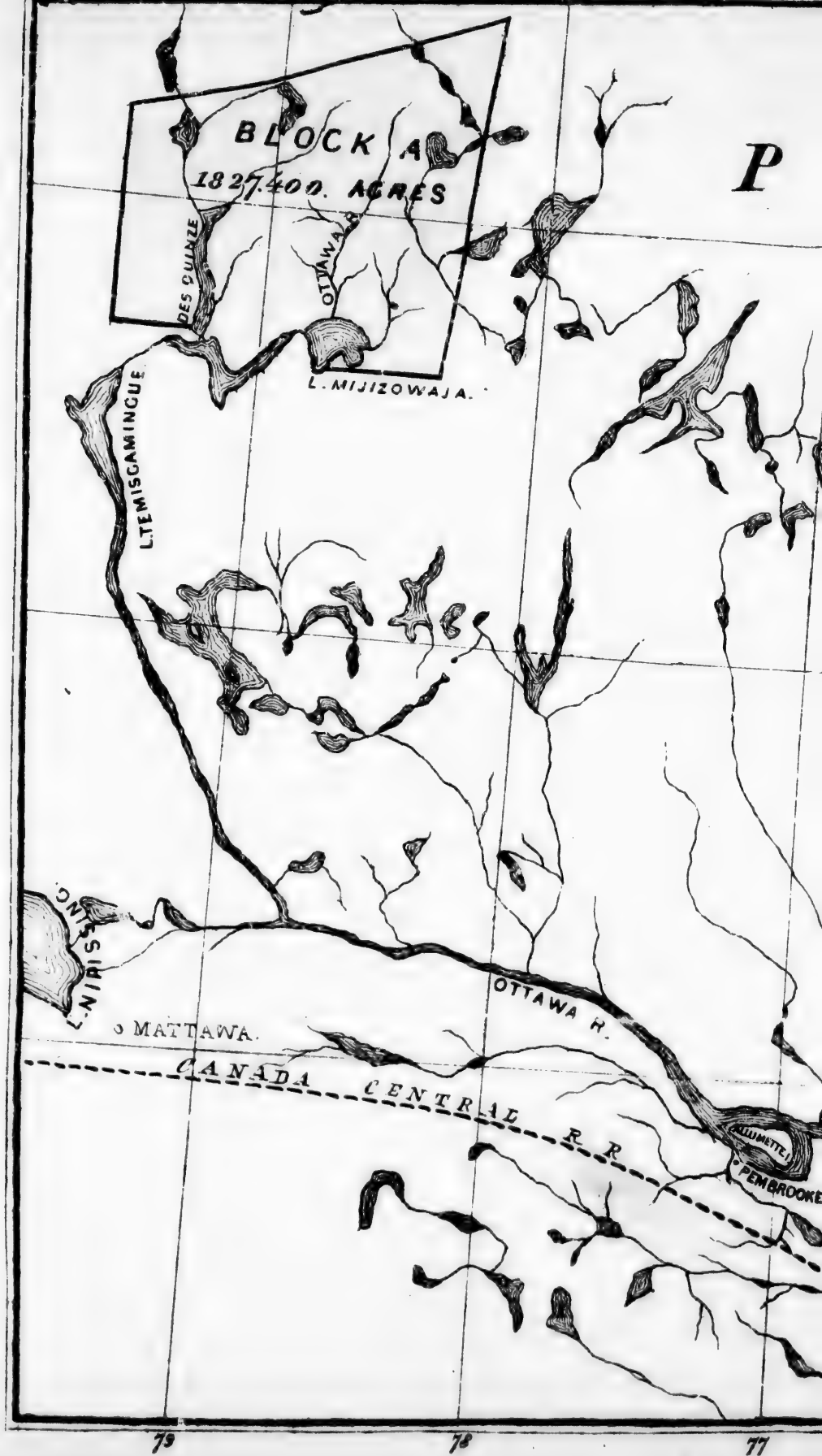
To the Honorable,

The PRESIDENT AND DIRECTORS,

Of the NORTH SHORE RAILWAY COMPANY.



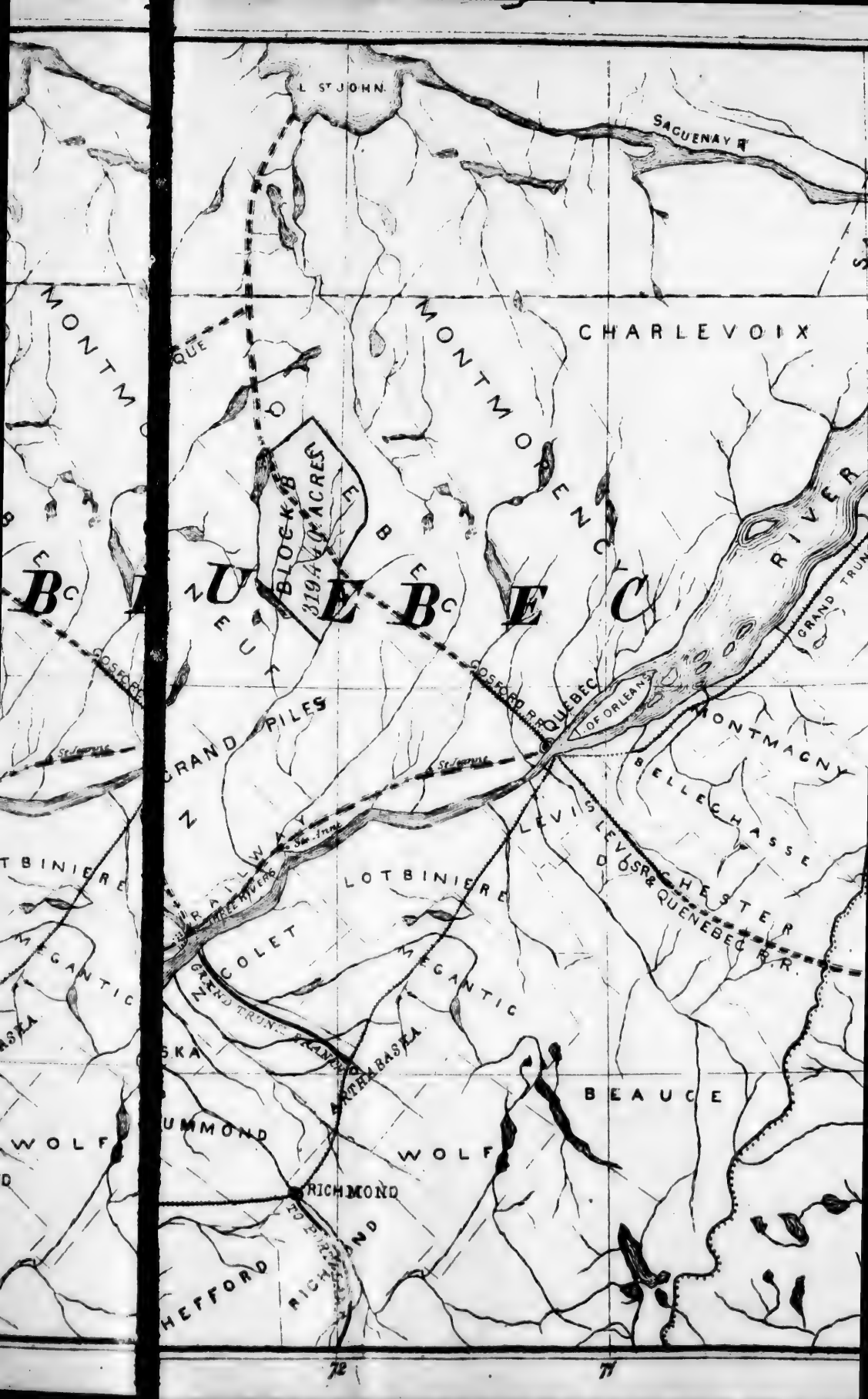


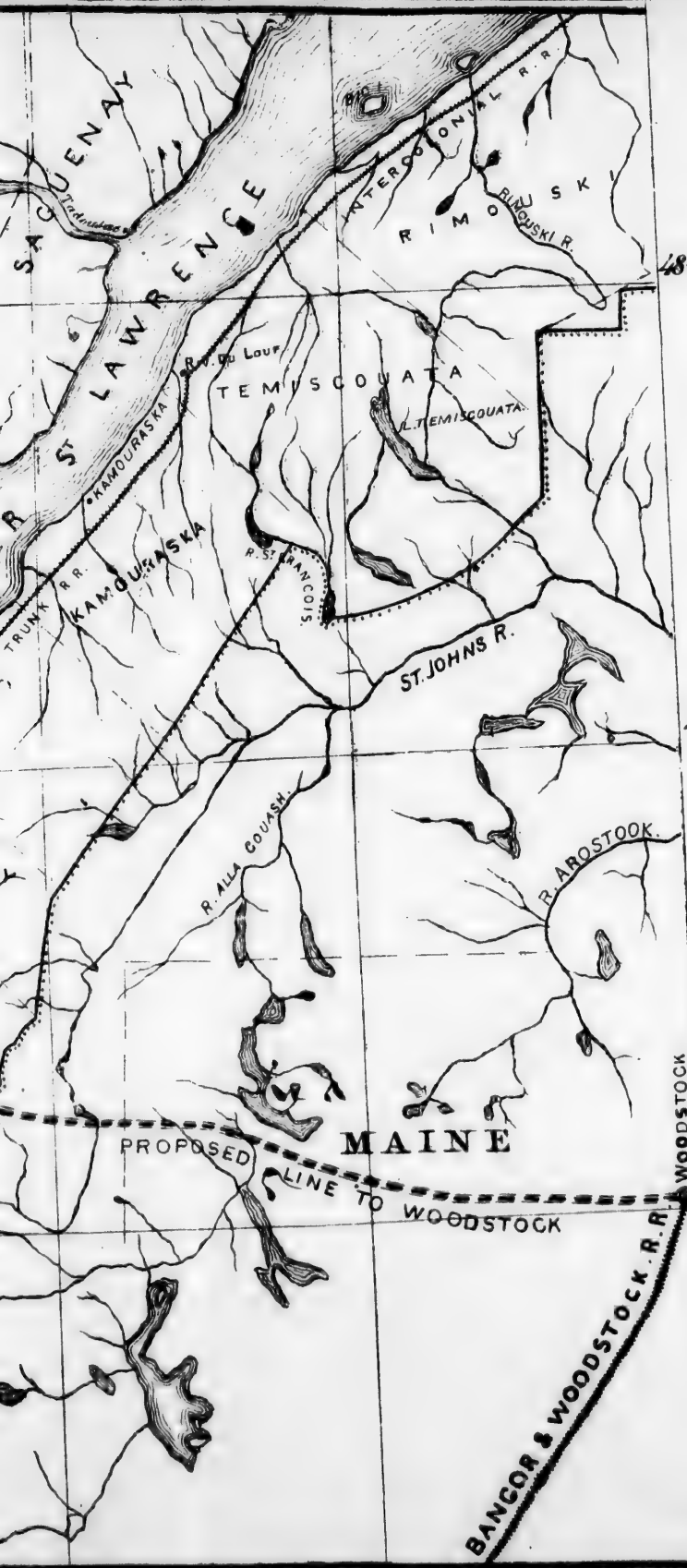


# P R O V I N C E









**SHEWING**

**GO**

**NORTH**

**CO**

*To accompany*

**LANDS GRANT  
& NORTHERN**

<b>BLOCK</b>	<b>A</b>
"	<b>B</b>
"	<b>C</b>
"	<b>D</b>

*Of which an und  
have been granted*



**LITH & PRINTED BY WYSE &**

MAP

VIEWING THE LANDS GRANTED

BY THE

Government

TO THE

NORTH SHORE RAILWAY

COMPANY.

to accompany the Engineer's report of 1872.

LANDS GRANTED TO THE NORTH SHORE  
& NORTHERN COLONISATION R. R. CO.<sup>S</sup>

CK A ..... 1827,400. Acres.

B ..... 319,440. .. ..

C ..... 371,200. .. ..

D ..... 685,466. .. ..

3203506. .. ..

which an undivided 2000,000 Acres  
has been granted to the North Shore R.R. Co.



Scale of Miles.

J. Seymour.  
Eng. in Chief.

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## APPENDIX.





## APPENDIX.

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### IRON ORES ALONG THE ROUTE OF THE NORTH SHORE RAILWAY.

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*Extract from the Report of SIR WILLIAM E. LOGAN,  
L. L. D., F. R. S., F. G. S., Director, upon the  
"Geological Survey of Canada" dated in 1863—  
Relating to the extent and value of the deposits of  
Iron Ore, in the Valley of the St. Lawrence River,  
between Quebec and Montreal.*

"The St. Maurice Forges, in the vicinity of Three Rivers, were for more than a century supplied with bog ore collected in that vicinity. One locality, now nearly exhausted, was in the Augmentation of Caxton, chiefly on the land of Mr. Pierre Boivin. About four miles to the northeast of this in the fourth range, of the fief St. Etienne, is a marsh covering about 1,200 acres, from which during the dry weather of summer a good deal of ore was extracted a few years since: it occurred scattered in irregular patches. Two and a half miles southeast from this, in the second range of St. Etienne, on the land of M. Louis Bellefeuille, is a bed, extending in patches from six to nine inches thick, over an area of thirty or forty acres, from which ore was extracted in 1852. The ore has also been obtained in considerable quantity from several localities in the adjacent seigniory of Pointe du Lac; and it is also said to have been brought from near Nicolet, on the south side of the St. Lawrence. Two analyses of selected specimens of the ore formerly used at the furnace, are given, and show 52.0 and 54.2 per cent. of iron.

"Between the St. Maurice and Batiscan rivers some important deposits of ore have been met with, especially in a triangular area of about six square miles, lying in the ranges of St. Félix and Ste. Marguerite, partly in the seigniory of Champlain, and partly in that of Cap de la Madeleine. Over this surface, the ore is scattered in irregular patches of from four to ten inches in thickness; and

for several years large quantities were obtained for smelting at St. Maurice. The piles of ore obtained from several patches included in three fourths of an acre, were estimated by measure at 390 tons; while two other piles in the vicinity contained about 750 tons.

" In the seigniory of Champlain, and on the south side of the river of the same name, there is an area extending northeast from near Richardson's mills, for a distance of nearly three miles, occupying about 1100 acres; and another parallel band on the north west, covering about seventy-five acres over both of these the ore is distributed in patches or small beds of from three to twelve inches in thickness. The northeast portion of this reaches the Rivière à la Lime, in the seigniory of Batiscan, and has been wrought to supply the Forges on the Batiscan River. To the east of this River, numerous patches of the ore are found in the seigniories of Batiscan and Ste. Anne de la Pêrade; as also on the road between Portneuf and St. Basil, on the Jacques Cartier, at Cap Santé, and elsewhere.

" Within four or five miles of the village of Industry, there are several places in which bog iron ore is met with. One of these is partly in the township of Kildare, and partly in the Augmentation of the seigniories of Lanoraie and Dautraye, comprising a superficies of about nine squire miles; and it exhibits patches of ore in so many of the parts which have been cleared of forest, as to lead to the hope that it may become profitable. Among other localities in this region, the ore is found on the line between the first and second ranges of Kildare, on the seventh and eighth lots; and on the seventh lot, on the road between the fourth and fifth ranges. Other localities where the ore was observed were in Côte Ste. Emelie and Côte Ste. Rose; but these portions being still in part covered with wood, it is difficult to determine the extent of the ore, although it appears to be considerable. Farther to the east, this ore was also met with between the Rivers Ste. Marie and Achigan, and in the seigniory of Lachenaye.

" It will be seen from the preceding description that bog iron ore in considerable quantities is spread along the North Shore of the St. Lawrence, from the vicinity of Montreal nearly to Quebec. Many of these deposits have been long known, and a furnace for smelting the ore was established in St. Maurice, in the year 1737, where the manufacture of iron continued until the year 1858. In 1831, according to Bouchette, from 250 to 300 persons were employed at the establishment, which was famed for the fine

quality of its castings, and also for a superior wrought iron ; but, owing to the growing scarcity of ore and charcoal in the immediate vicinity, the St. Maurice Forges were finally abandoned.

" The Radnor Forges have within a few years been erected at Batiscan, in the seigniory of Cap de la Madeleine, and are supplied with ore and charcoal from this and the adjoining seigniory of Champlain. The crude ore is brought to the furnace, partly by the workmen of the Company, and partly by the farmers on whose land it is found. It is washed to free it from adhering earth, and then yields from forty to fifty per cent. of metal ; about 2,000 tons of cast iron being now produced annually from between 4,000 and 5,000 tons of ore. The number of workmen employed at the Radnor Forges varies from 200 to 400 ; a great many hands being required at certain seasons, to dig up and bring in the ore, and to prepare and transport the charcoal.

" The chief manufacture of the Company has, of late, been cast-iron wheels for Railway Cars, for which the metal appears well adapted. A pair of car-wheels, with an axle, of this manufacture, were sent by Messrs. Larue & Co., the proprietors of the Forges, to the International Exhibition of 1862, which were said to have run 150,000 miles. Wrought iron is also made at this establishment ; and a rolling-mill has recently been erected here, which furnishes iron for the manufacture of scythes, and nail-rod iron. Limestone, which is used as a flux for the ore, is obtained from the Trenton formation in the vicinity ; and a refractory sandstone for the furnace hearths is obtained from the Grès Rapids, on the St. Maurice. This rock belongs to the Potsdam formation ; and being here of a freer texture than in most other parts of the Province, is better fitted for resisting fire. Blocks of from twelve to fourteen inches thick, four feet long, and twenty inches wide, are found not to require renewal oftener than once in two years. A sand which is used for moulding is found in the neighborhood."



# LETTER

From the Hon. JOHN YOUNG,

LATE COMMISSIONER OF PUBLIC WORKS FOR CANADA, AND PRESIDENT  
OF THE DOMINION BOARD OF TRADE,

SHOWING

THE COMMERCIAL RELATIONS AND FINANCIAL  
PROSPECTS OF THE  
NORTH SHORE RAILWAY OF CANADA.

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*Being a Reply to a Communication from the Honorable JOSEPH  
CAUCHON, M. P., President of the Dominion Senate, and Pre-  
sident of the North Shore Railway Company.*

MONTREAL, 10th April, 1872.

To the Honorable  
JOSEPH CAUCHON, M. P.,  
President North Shore Railway Co.,  
Quebec.

SIR,

I am in receipt of your letter of the 6th inst., in which you state, that from my long and intimate knowledge of the trade and resources of the Cities of Quebec and Montreal, as well as of intermediate Towns, Counties and Parishes ; you are desirous of obtaining from me an expression of my opinion as to the business, which will be attracted to the North Shore Railway between

Quebec and Montreal, and to the value of the pine lands, granted by the Government of Quebec by the act passed December, 24, 1870, in aid of that enterprise.

Having long been in favor of the construction of your railway, I have much pleasure in briefly stating my reasons for believing that it will prove a commercial success.

At present there is no railway on the north side of the St. Lawrence, below Montreal, and the only railway on the north side of the Ottawa river is that of 12 miles, connecting the villages of Carillon and Grenville. On the south shore of the St. Lawrence, the "Grand Trunk" Railway extends from Rivière du Loup, 130 miles below Quebec, crossing the St. Lawrence to Montreal by the Victoria Bridge and extending thence to Sarnia, on the river St. Clair, near Detroit. This with the extension to Island Pond, *via* Richmond, on the Portland route, makes the distance worked by that company 1377 miles. The Great Western runs from Toronto to Windsor, opposite Detroit, a distance of 350 miles. A branch extends from the Grand Trunk, at Prescott, to Ottawa, of 52 miles, another from Brockville to the Ottawa River at Sand Point, and a branch also extends from Toronto to Collingwood, on Georgian Bay, a distance of 97 miles. These are the principal lines now existing in Canada, but the Intercolonial Railway from Rivière du Loup is now being constructed to extend from that point to Halifax, a distance of 685 miles from Quebec.

Before alluding to the position of your road, or its power to compete for Western Canadian and Western States trade, I shall glance at the traffic in freight and passengers, which is likely to pass over it, between the Cities of Quebec and Montreal.

The population of the former is 62,000 and of the latter in round numbers 120,000. The distance between the two Cities by your railway will be 160 miles. The grades on the road, will be superior to any on the Continent. The distance by the Grand Trunk from the Bonaventure Station, in Montreal, to Quebec, *via* Richmond, is 172 miles. The time between the two Cities is increased by the necessity of changing at Point Lévis, from the Railway to the Ferry-Boat, which carries the passengers and freight to Quebec, and this difficulty is greatly increased during the winter months. With an average speed of 20 miles an hour, the difference in time will be one hour and a half in favour of the route on the North Shore, and this independent of the detention at Richmond, which frequently results from not connecting with the Eastern Trains to and from Portland. Supposing the line laid

with heavy steel rails, there will be no difficulty in making the average speed 28 miles per hour, including stoppages, which would be  $5\frac{1}{4}$  hours between Quebec and Montreal. No change of cars being necessary, there would be the same successful competition with the passenger Steamers on the St. Lawrence during navigation, as has resulted from the competition of the Railway with the Steamers navigating the Hudson between Albany and New York. The travel between Quebec and Montreal during the season of navigation is greatly increased by tourists from the United States. The number of first class passengers carried by the Richelieu Company's Steamers during last year exceeded 26,000, and about 38,000 of second class. The best proof of the value of such travel is, that the Stock of this Company, originally \$100 per share, was increased to \$200, yet on this doubled value it cannot be purchased at less than 180. Was your road completed, and the time occupied only  $5\frac{1}{4}$  to 6 hours, instead of 13 hours by the Steamer, there can be no doubt that a large and profitable business would be done.

Independent of this business, and between the two cities, there is the local traffic. Three Rivers, half way between Quebec and Montreal, has a population of 7,000. It is situated at the mouth of the St. Maurice river, which drains a vast territory, covered with forests of pine and other woods. Very large deposits of Iron exist on it, some of which are being successfully worked, besides other mineral deposits. The population is rapidly on the increase, and when the branch railway is made to the Piles, and Steamers placed on the river above the Piles, navigable with slight improvements for 140 miles, a great impulse will be given to the trade of this region; and deals and lumber will then be carried, at a less cost of transport by rail from the mills in the interior to Quebec, than at present. Berthier is the next largest Town on the route, while Ste. Annes, Champlain, Portneuf, Maskinongé, l'Assomption, Rawdon, Industrie, Terrebonne, St. Therese and St. Jerome, will all be feeders to the road in freight and passengers.

Such are some of the facts in connection with your railway, and the position of Quebec.

I have stated that the distance to Halifax, by the Intercolonial Railway from Quebec will be 685 miles, but a road is now being surveyed from Point Levis to Bangor, in Maine, of which 30 miles are already built, which will give a connection with Halifax



230 miles less than by the Intercolonial, and 40 miles less to Portland, than by the Grand Trunk.

I would now direct your attention, as to the position of your road for attracting passengers and freight traffic from Western Canada and the Western States. Montreal has lately passed a by-law to be confirmed by the people, granting one million of dollars to the Northern Colonization Railway, to connect with yours at Montreal, and to be extended to Pembroke on the Upper Ottawa. A charter has been granted by the Dominion Parliament to extend it thence to the Sault Ste. Marie, at the eastern end of Lake Superior. The Northern Pacific Railway is now built from Duluth, at the western end of Lake Superior, to St. Croix, on the upper Mississippi. From the latter place it is now connected with St. Paul, and will be extended rapidly to within 40 miles of Fort Garry. It is difficult if not almost impossible to build a railway north of Lake Superior, but every facility is offered in low grades and a straight line, to construct a railway from Sault Ste. Marie, through Michigan and Wisconsin on the south side of the Lake to Duluth, and thus connect the Northern Pacific with your road and the other lines to the Sault Ste. Marie.

A glance at the map will shew that from those States, Minnesota, and others adjoining, it is almost a straight line to Montreal and Quebec. With a bridge across the Straits, freight and passengers can be carried from Duluth to Quebec, without shifting cars, on a 4 feet 8½ inch gauge Railway, 300 miles shorter than by any other possible road from the head of Lake Superior to New York and Boston. This fact will have an important bearing on your enterprise, because cars can thus be brought from Michigan, Wisconsin and Minnesota, without requiring change, or breaking bulk, to Quebec, a Sea Port 480 miles nearer Liverpool than New York, a Port too, accessible from Sea for ships like the "Great Eastern," without obstructions of any kind.

When the Pacific Railway is completed from Duluth, and connected with your North Shore Road, it will be found that Quebec is 340 miles nearer the Pacific than by any other route, while its terminus on the Pacific will be 500 miles nearer Japan and China, than the Port of San Francisco. And I cannot doubt that this whole system of Northern and Western Railways will, at Quebec, or near it, be connected with the South Shore of the St. Lawrence by means of a Bridge adapted to Railway transport, thus allowing

cars to run from the Pacific *viâ* Quebec to any of the North Eastern ports of the Atlantic, without breaking bulk.

Again, a Road is now projected and will be speedily built from Toronto on a direct line, to connect with your Road on the Ottawa, near the capital. This line will bring the trade of Toronto, Hamilton, Detroit, Chicago, &c., to Quebec, on a uniform gauge, and by a route 25 miles shorter than by the present route on the Grand Trunk Railway. It is difficult to estimate the importance of this projected line, in the interests of your Railway. Freight of all kinds, can then come to Quebec without any transshipment and be placed on board of the Ocean ships; while in-bound freight can, on arrival, be at once placed on the cars and taken to Toronto and other places west, or can be taken by Sault Ste. Marie and delivered in the more Northern States of Michigan, Wisconsin and Minnesota, or to Manitoba, and the Pacific. When this route is opened it will become the best for Emigrants, for on arrival at Quebec, they can at once proceed to their destination, without change of cars.

The largest possible improvements of the water communication with the Western Lakes, will not prove inimical to the parallel railways. On the contrary, the success of the Canadian railways will largely depend on the superiority of the water routes. While the St. Lawrence Canals, in 1870, only attracted 15 p. ct. of the Western trade, the Erie Canal, through the State of New York got 85 p. ct. Yet the great double track roads parallel with the canal are the most successful on the Continent. The railway has a salutary influence on trade, from its superior capacity for carrying passengers, live stock, light and valuable goods, and such as require quick and rapid transport. In this way it confers a benefit on the interest of parallel navigation whether natural or artificial.

I find that besides the million of dollars granted by the City of Quebec, in aid of your enterprise, which is equal to Gold; your company has received a donation of two million acres of timber lands from the Government of Quebec, by an Act of the Legislature, passed 24th December, 1870. Those lands are embraced in four separate Blocks, or parcels, and are described on the Map of Survey, as being covered with pine timber, and some with spruce and hard wood. Those lands are situated on the Upper Ottawa, on the Batiscan, St. Pierre and St. Maurice Rivers. In the present rapidly increasing value of all pine timber, and other soft woods, consequent on their decrease in Maine, New-Brunswick and Michigan, it would be difficult to place a value on such lands

without a thorough exploration of the territory. From my knowledge of the matter, it will be safe to consider that *Four Dollars* per acre would be a very moderate estimate of their value; and this opinion will be fully borne out by the fact that white pine at Quebec is now worth 25 cents per foot; as well as by the lawsuit lately decided, of Thomas vs. Perkins, in which evidence was given by practical men, that each pine tree on the Gatineau, near Buckingham, was worth Four Dollars, and judgment was rendered accordingly. It is now very evident that in consequence of the growing scarcity, the price will in a few years be much higher.

Wishing you every success, in your undertaking, and hoping that the road will be rapidly built.

I am Yours, very respectfully,

JOHN YOUNG,

Late Prest. of the Dominion Board of Trade.

# LETTER

ON THE SUBJECT OF A

SUBMERGED TUBULAR OR TUNNEL BRIDGE UNDER THE RIVER ST. LAWRENCE.

By HON. W. MARSDEN, M.A., M.D., &c., &c.

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PLACE D'ARMES,

QUEBEC, 19th March, 1872.

SIR,

The high opinion which your antecedents have given me of your skill, judgment, decision of character, and experience as an engineer; no less than that quality which one of your biographers characterizes as a "tenacity of purpose that never yields," has induced me thus publicly to address you on a subject, the importance of which to this city, as a commercial centre, is paramount to every other consideration: I mean the North-Shore Railway. Under your skilful and energetic management and direction, I look upon this long lingering line as a *fait accompli*.

I do not mean that with the completion of the North-Shore Railway this great national work will be completed. No! It will then be only just begun. This link or portion of a great commercial highway across this continent, the *shortest and most direct route from Great Britain to the Pacific Ocean*, will be only the beginning of a great end—one that will affect the whole European policy, and particularly its trade with China, India, Japan, &c., &c.

Many of my *anonymous* newspaper predictions of bye-gone years—some of which, at the time, were denounced as "fabulous," and others as "castle-building in the air,"—have already been successfully accomplished; and among these, the prognostic of "the Atlantic cable," (long before Lieut. Maury's deep-sea survey of the Northern Atlantic Ocean,) which up to that time seemed equally chimerical.

When we consider, Sir, that by our short Northern circuit of the globe, an air-line from Quebec to New Westminster, British Columbia, is only two thousand and twenty (2,020) miles, and from Quebec to Liverpool by the Straits of Belleisle, by the Allans' line route, only two thousand five hundred and two (2,502) miles, it required no extraordinary flight of fancy to predict at a public lecture, delivered some years ago by me in this city, that this being the shortest route to "La Chine"—China—India—from Great Britain, many of my hearers would live to see the trip from Great Britain to the Pacific Ocean accomplished within the short space of a fortnight, without any increased railroad speed, but with steamers of a class to equal the best sea-going vessels afloat, of which the *Polynesian* is now an ensample.

It is surprising, Sir, what a trifle will sometimes make or mar the greatest enterprise; and this has eminently been the case until now, with the North Shore Railroad, as I will show you.

During the progress of the construction of the Quebec and Richmond Railway, and when it was approaching completion, a spasmodic effort was made to float the North Shore Railway, when Mr. Jackson (of Jackson, Peto, Brassey and Betts) was present, and several of the provisional directors of the road. On my remarking to Mr. Jackson that the railroad ought to have been on this side of the river, instead of on the South Shore, he replied: "Yes, it ought, and would have been but for these gentlemen"—referring to the directors. "As I did not know their engineer, Mr. Stavelly, I could not, of course, give a tender on his survey and estimates; and I therefore offered them, if they would advance £500, I would give £1,000 for an experimental survey by our engineer, Mr. Ross; but they declined. Had they done this, the road would now have been on this side of the river, which is the right side, as all the cities or towns are on this side, and two bridges would have been saved. Thus, for want of a nail the shoe was lost; for want of a shoe the horse was lost; for want of a horse the rider was lost, being overtaken and slain by the enemy—and all for want of a horse-shoe-nail!"

But, Sir, let us proceed from the past to the future, and be thankful that poor, old, unprogressive, obstructive Quebec stood in the way of such progressive, practical, public men as yourself and Willis Russell, Esq., who gave the order to "move on!" which order has been taken up and echoed and re-echoed until not a loiterer remains upon the road; nor will there be, until this

great trans-continental railroad is completed from the broad Atlantic to the boundless Pacific.

The completion of this link of the road, Sir, will be followed by two results, not less important to this city than the railroad itself—viz., Harbour Extension and Eastern Connexion.

"Harbour Extension" will rouse the Harbour Commissioners from their present lethargy; and wharves, docks, drawbridges and floating elevators will rise up, as if by a magic that might astonish Rip-Van-Winkle; and the depreciated Harbour Bonds—now almost a drug—will become valuable negotiable securities.

So much, Sir, for "Harbour Extension;" and we now come to the most important object connected with this letter—viz.: "Eastern Connexion," which means a "Bridge."

It is several years since I wrote, *anonymously*, in one of our city papers, that the completion of the North Shore Railway would give to Quebec an "Albert" submerged tubular or tunnel bridge, as sure as Montreal had her "Victoria Bridge," and that the present generation would live to see it; and among the reasons assigned for my preference of a tunnel bridge, were its small cost compared with other bridges, besides its advantages in not obstructing or interfering with navigation. A bridge would also secure a direct and easy line from Levis to St. Charles by Major Robinson's Quebec and Halifax route, being only ten miles instead of twenty-two. By this route, which extends eastwards instead of westwards to the Chaudière, a grade of only about one-half that of the present road is obtained, besides a saving of twelve miles.

The project of a tunnel from Dover to Calais, across the English Channel, might have been contemplated, but it had not been publicly broached or seriously spoken of till some time after the appearance of my letter just referred to, and, when it was spoken of, was at first ridiculed as the chimera of some monomaniac; but when I look back, and contemplate what you, Sir, have already done, and what has been correctly designated as "a monument of your skill, ingenuity, and professional judgment, the famous Portage Bridge across the Genessee River, two hundred and thirty-four (234) feet high, and eight hundred (800) feet in length," I have no fear of figuring in that class if I repeat, over my own signature, that I really expect to live to see that necessary work accomplished, under the skilful management of one who ranks "as one of the most prominent Civil Engineers of our country."

With the "North-Shore Railway" and the "Quebec and Gosford," (which will ultimately be the Quebec and Lake St. John,) and the "Quebec and Halifax," the "Quebec and Richmond," and the "Levis and Kennebec," already extending their iron arms, and asking to be united, (with a strait of only a mile wide between them,) "a Bridge is a necessity." This being so, *Money* and *Will*, alone, are required to obtain it. Of the former, it requires such a trifle, in comparison with the immensity of the enterprise of which it forms an indispensable component part, that with the combined energy and will, of persons as persevering and determined as yourself, and the Honorable President of the road, Mr. Cauchon, "the Bridge" will also become a *fait accompli*.

I have, Sir, advisedly abstained from making any remarks on the respective merits of tubular, suspension, submerged or other bridges, aware that I am addressing one eminently qualified to treat on the whole subject; and I have, therefore, taken the liberty of speaking thus publicly, as your reply (should you honour me with one) will be as interesting to every citizen of Quebec as to

Your obedient servant,

W. MARSDEN, M.A., M.D., &c.

TO GENL. SILAS SEYMOUR,

ENG. IN CHIEF N. S. R. ;

GENL. CONSULTING ENGINEER ;

&c., &c.

**EXTRACT**  
FROM THE  
**REPORT OF MR. SANDFORD FLEMING,**  
**ENGINEER IN CHIEF**  
OF THE  
**CANADIAN PACIFIC RAILWAY,**  
SHOWING THE ADVANTAGES IN ELEVATION, GRADES, AND DISTANCES  
OF THIS GREAT NORTHERN ROUTE, AS COMPARED WITH  
THE MORE SOUTHERN ROUTES OF THE  
UNITED STATES.

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In concluding a summary of what has been accomplished since the survey was instituted in June last, it is greatly to be regretted that more definite information has not yet been received respecting the explorations now in progress east and west of Lake Nepigon, in the rear of the rugged belt along Lake Superior.

Assuming, however, and enough it is believed is known to warrant the assumption, that all difficulties in this quarter will be obviated, it may be claimed that the practicability and the general direction of the Railway Line from Ottawa to Fort Garry, thence across the great plains and the Rocky Mountains to Tête Jaune Cache has approximately been determined, and that from the last named point at least one line to the waters of the Pacific Ocean has been found practicable.

It will be interesting to compare some of the features of the line referred to in the last paragraph, with the Union Pacific Railway in the United States, for this purpose a diagram accompanies this, showing thereon profiles of both.



From this diagram it will be seen that the Union Pacific Railway\* extending from Omaha to San Francisco, runs, for 1,300 miles, or three-fourths of its entire length, at a higher level than the Yellow Head Pass; and that this point, the *great summit* of the Canadian Pacific Railway line, is less than half the elevation attained at several points on the line now being operated across the Continent.

A Table, giving the distances between some of the principal points in the country extending from the Ottawa Valley to the Pacific coast, is appended hereto. It is not to be supposed that this Table has any great pretensions to accuracy, except in the cases of Railways built or surveyed; in other cases the distances are simply ascertained by measurement on the maps of the country, and it is not at all certain that even the best maps are free from grave errors. Be this as it may, there are no means of checking the distances, until the chain of surveys are connected from end to end and the results known. It is believed, however, that even rough approximate distances may be useful to the Government in considering the question of the Railway, and for this purpose they are presented.

One or two points brought out by the Table of comparative distances are worthy of note.

Montreal and Toronto are the chief Commercial centres in the Provinces of Quebec and Ontario, and it is important to ascertain how they can best be reached from a point in the Interior—say Fort Garry.

According to the Table, the distance between Montreal and Fort Garry by the line of the Canadian Pacific Railway, is 1,180 miles, while by Railway projected through Sault Ste. Marie, Duluth and Pembina, the distance is 1,440 miles, and by way of Chicago and St. Paul, the distance is 1,843 miles—showing that by the three *all-rail* routes, made or projected between Fort Garry and Montreal, the Canadian Pacific line is 260 miles shorter than the line passing through Sault Ste. Marie, and 663 miles shorter than the route at present travelled *viâ* Chicago and St. Paul.

Taking Toronto as a starting point, and using the Northern or Nipissing Railways, as far as Bracebridge, thence connecting them with the Canadian Pacific Railway at Mattawa, it appears from the Table that the total distance to Fort Garry, is 1,110 miles, while by way of Bracebridge, Sault Ste. Marie, Duluth and Pem-

\*Embracing the Central Pacific Railway.

bina, the distance is 1,290 miles, and by way of Chicago and St. Paul, the distance is 1,507 miles, thus establishing the fact, that of the three *all-rail* routes made or projected between Fort Garry and Toronto, the Canadian Pacific, is 180 miles shorter than the route *viâ* Sault Ste. Marie and Duluth, and close on 400 miles less than the Railway route *viâ* Chicago and St. Paul.

It will be farther seen that, during the season of open navigation, the distance between Toronto and Fort Garry *viâ* Nepigon, is 1,074 against 1274 miles *viâ* Duluth and that part of the Northern Pacific Railway east of Pembina—giving a saving of 200 miles in favour of the Canadian Pacific, and branch to Nepigon, of which saving 40 miles is rail and 160 miles water.

Viewing the Canadian Pacific Railway as a "through" route between Ports on the Atlantic and Pacific Oceans, the comparative Profile referred to in a previous paragraph, and which accompanies this, illustrates the remarkable engineering advantages which it possesses over the Union Pacific Railway. The lower altitudes to be reached, and the more favorable gradients, are not, however, the only advantages.

A careful examination into the question of distances, shows, beyond dispute, that the Continent can be spanned by a much shorter line on Canadian soil than by the existing Railway through the United States.

Referring to the Table again, it will be seen that the distance from San Francisco to New-York, by the Union Pacific Railway, is 3,363 miles, while from New Westminster to Montreal, it is only 2,730 or 633 miles in favor of the Canadian route.

A closer examination of the Table will show that by the construction of the Canadian Pacific Railway, even New-York, Boston and Portland will be brought from 300 to 500 miles nearer the Pacific coast than they are at present.

A comparison of distance between distant points which may form traffic connections with the Inter-Oceanic Railways of North America, bring out some important facts referred to in the Table.

Compared with the Union Pacific Railway, the Canadian Line will shorten the passage between Liverpool and China, in direct distance, more than one thousand miles.

When the remarkable Engineering advantages which appear to be obtainable on the Canadian line, and the very great reduction in milenge above referred to, are taken into consideration, it is

evident that the Canadian Pacific Railway, in entering into competition for the Through Traffic between the two Oceans, will possess in a very high degree the essential elements of success.

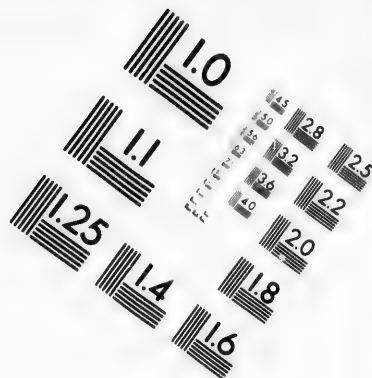
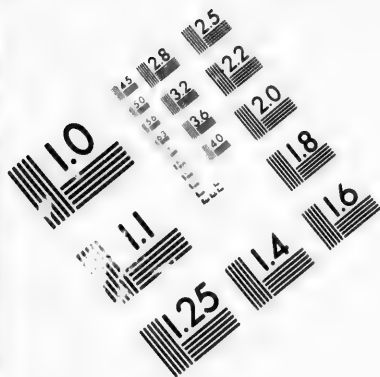
It has been found impossible to make any comparison with the Northern Pacific Railway, projected through the Territories of the United States, to Puget Sound, as no reliable information could be obtained respecting distances, gradients, elevations, or probable route, except on that portion of the undertaking east of the Red River.

## TABLES REFERRED TO IN THE FOREGOING EXTRACT.

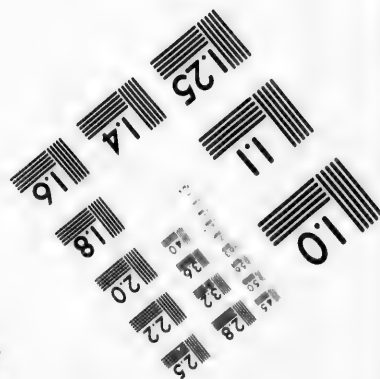
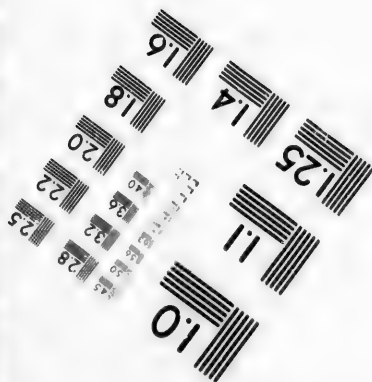
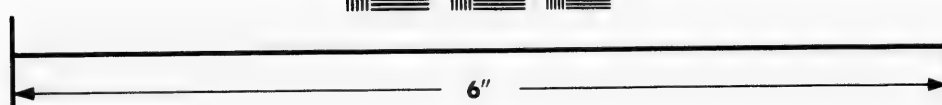
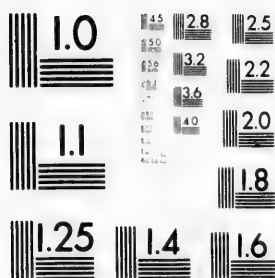
## APPROXIMATE DISTANCES.

Canadian Pacific Railway, as projected on Plan.

	NAMES OF PLACES.	Intermediate Distances.		Total Distances.
		Miles.	Miles.	
	Mattawa to junction of Nipigon branch .....	580	.....	Miles.
	Junction of Nipigon branch to Fort Garry.....	320	.....	
	Mattawa to Fort Garry.....		900	
	Nipigon branch .....	120	.....	
	Fort Garry to Jasper House. ....		1,000	
	Jasper House to Yellow Head Pass .....	40	.....	
	Yellow Head Pass to Tête Jaune Cache.....	60	.....	
	Jasper House to Tête Jaune Cache.....		100	
	Mattawa to Tête Jaune Cache... ..		2,000	
	Tête Jaune Cache to New Westminster (Burrard Inlet) via Kamloops and line under Survey.....		450	
1	Mattawa to New Westminster.....			2,450
	Mattawa to Tête Jaune Cache (as above).....		2,000	
	Tête Jaune Cache to Bute Inlet, via North Thompson and Lac la Hache .....		450	
2	Mattawa to Bute Inlet .....			2,450
	Mattawa to Tête Jaune Cache (as above).....		2,000	
	Tête Jaune Cache to Bute Inlet, via North Fraser River and Fort George and Chilcotin.....		450	
3	Mattawa to Bute Inlet .....			2,450
	Mattawa to Bute Inlet (as above).....		2,450	
	Bute Inlet to Alberni Canal (Barelay Sound) .....		150	
4	Mattawa to Alberni Canal. ....			2,600
	Mattawa to Bute Inlet (as above).....		2,450	
	Bute Inlet to Victoria, (Esquimaux Harbor) .....		250	
5	Mattawa to Victoria.....			2,700
	Mattawa to Tête Jaune Cache (as above).....		2,000	
	Tête Jaune Cache to Port Essington, via North Fraser River.....		500	
6	Mattawa to Port Essington.....			2,500



# IMAGE EVALUATION TEST TARGET (MT-3)



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## COMPARATIVE DISTANCES.

Names of places between Montreal, Toronto and Fort Garry.		Rail or Water.	Inter-mediate Distance	Total Distance.
			Miles.	Miles.
Montreal to Mattawa.....		Rail.	280	
Mattawa to Fort Garry (Canadian Pacific) .....		do	900	
1 Montreal to Fort Garry (via MATTAWA) .....				1,180
Montreal to Mattawa .....		do	280	
Mattawa to Sault Ste. Marie .....		do	280	
Sault Ste. Marie to Nipigon .....		Water.	260	
Nipigon to Fort Garry (Canadian Pacific).....		Rail.	440	
2 Montreal to Fort Garry (via MATTAWA, SAULT and NIPIGON) .....				1,260
Montreal to Mattawa.....		Rail.	280	
Mattawa to Sault Ste. Marie.....		do	280	
Sault Ste. Marie to Duluth .....		Rr or W.	400	
Duluth to Moorhead .....		Rail.	243	
Moorhead to Fort Garry .....		do	237	
3 Montreal to Fort Garry (via MATTAWA, SAULT, DULUTH, and MOORHEAD) .....				1,440
Montreal to Chicago .....		Rail.	848	
Chicago to St. Paul.....		do	491	
St. Paul to Fort Garry.....		do	501	
4 Montreal to Fort Garry (via CHICAGO and ST. PAUL)..				1,843
Montreal to Toronto .....		Rail.	333	
Toronto to Collingwood.....		do	94	
Collingwood to Nipigon.....		Water.	540	
Nipigon to Fort Garry (Canadian Pacific).....		Rail.	440	
5 Montreal to Fort Garry (via TORONTO, COLLINGWOOD, and NIPIGON) .....				1,407
Toronto to Bracebridge (via Northern and Toronto and Nipissing Railway).....		Rail.	130	
Bracebridge to Mattawa.....		do	81	
Mattawa to Fort Garry (Canadian Pacific).....		do	900	
6 Toronto to Fort Garry (via BRACEBRIDGE and MATTAWA) .....				1,110
Toronto to Bracebridge.....		Rail.	130	
Bracebridge to Sault Ste. Marie.....		do	280	
Sault Ste. Marie to Nipigon .....		Water.	260	
Nipigon to Fort Garry (Canadian Pacific).....		Rail.	440	
7 Toronto to Fort Garry (via BRACEBRIDGE, SAULT and NIPIGON) .....				1,110

## COMPARATIVE DISTANCES CONTINUED.

Names of places between Montreal, Toronto and Fort Garry.		Rail or Water.	Inter-mediate Distance	Total Distance.
			Miles.	Miles.
	Toronto to Bracebridge .....	Rail.	130	
	Bracebridge to Sault Ste. Marie.....	do	280	
	Sault Ste. Marie to Duluth .....	R. or W.	400	
	Duluth to Moorhead .....	Rail.	243	
	Moorhead to Fort Garry.....	do	237	
8	<i>Toronto to Fort Garry (via BRACEBRIDGE, SAULT, DULUTH, and MOORHEAD)</i> .....			1,290
	Toronto to Chicago.....	Rail.	512	
	Chicago to St. Paul.....	do	491	
	St. Paul to Breckenridge.....	do	217	
	Breckenridge to Fort Garry .....		287	
9	<i>Toronto to Fort Garry (via CHICAGO and St. PAUL)</i> ...			1,507
	Toronto to Collingwood.....	Rail.	94	
	Collingwood to Nipigon .....	Water.	540	
	Nipigon to Fort Garry (Canadian Pacific) .....	Rail.	440	
10	<i>Toronto to Fort Garry (via COLLINGWOOD and NIPIGON, and Canadian Pacific)</i> .....			1,074
	Toronto to Collingwood.....	Rail.	94	
	Collingwood to Duluth.....	Water.	700	
	Duluth to Moorhead .....	Rail.	243	
	Moorhead to Fort Garry .....	do	237	
11	<i>Toronto to Fort Garry (via COLLINGWOOD, DULUTH, and MOORHEAD)</i> .....			1,274
	Fort Garry to Duluth (Railway made or projected)...		480	
	Fort Garry to Nipigon (Canadian Pacific, Main line and Branch).....		440	

NOTE.—Wherever Fort Garry is mentioned in the above distances, the lower Fort Garry or Stone Fort, is the place meant; this being found the most eligible point for crossing Red River.



# COMPARATIVE DISTANCES ACROSS THE CONTINENT.

Description of Route between Atlantic and Pacific Ocean Ports.		Miles.
1	San Francisco to New York.—Union Pacific, Michigan Central and New York Central.....	3,363
	New Westminster to Montreal.—Canadian Pacific, and Line to Montreal via Ottawa.....	2,730
	Difference in favour of Canadian Route.....	633
2	San Francisco to New York.—Union Pacific, Michigan Central and New York Central .....	3,363
	New Westminster to New York.—Canadian Pacific, St. Lawrence & Ottawa, Ogdensburg & Rome, and New York Central.....	3,058
	Difference in favour of Canadian Route.....	305
3	San Francisco to Montreal.—Union Pacific, Michigan Central, Grand Trunk Railway.....	3,251
	New Westminster to Montreal.—Canadian Pacific, Montreal & Ottawa.....	2,730
	Difference in favour of Canadian Route.....	521
4	San Francisco to Boston.—Union Pacific, Michigan Central, New York Central, to Troy, Troy to Boston.....	3,422
	New Westminster to Boston.—Canadian Pacific, Ottawa to Montreal, Montreal to Boston.....	3,087
	Difference in favour of Canadian Route.....	335
5	San Francisco to Portland.—Union Pacific, Michigan Central, Grand Trunk Railway .....	3,548
	Westminster to Portland.—Canadian Pacific, Ottawa & Montreal, Grand Trunk Railway.....	3,027
	Difference in favour of Canadian Route. ....	521

NOTE.—The distance from Japan, China or the Asiatic Coast generally, to Liverpool is from 1,000 to 1,200 miles less by the Canadian Pacific than by the Union Pacific Railway. In reference to this point Professor Maury, U. S., writes:—"The trade-winds place Vancouver's Island on the way side of the road from China and "Japan to San Francisco so completely that a trading vessel under canvas to the "latter place would take the same route as if she was bound for Vancouver's Island—"so that all return cargoes would naturally come there in order to save two or three "weeks, besides risk and expense." It must, however, be clearly understood that this advantage equivalent to the distance between Vancouver Island and San Francisco, viz. about 800 miles, is independent of and in addition to the saving of direct distance, by the Canadian Route, given above.

## LATITUDES AND LONGITUDES.

NEW YORK.....	{ Lat. 40°—42'—12" N.
	{ Lon. 74 —00 —00 W.
MONTREAL.....	{ Lat. 45°—36 —17 N.
	{ Lon. 73 —58 —30 W.
SAN FRANCISCO.....	{ Lat. 37 —49 —12 N.
	{ Lon. 122 —20 —42 W.
NEW WESTMINSTER.....	{ Lat. 49 —13 —00 N.
	{ Lon. 122 —54 —30 W.

Files.

3,363

2,730

633

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3,058

305

3,251

2,730

521

3,422

3,087

335

3,548

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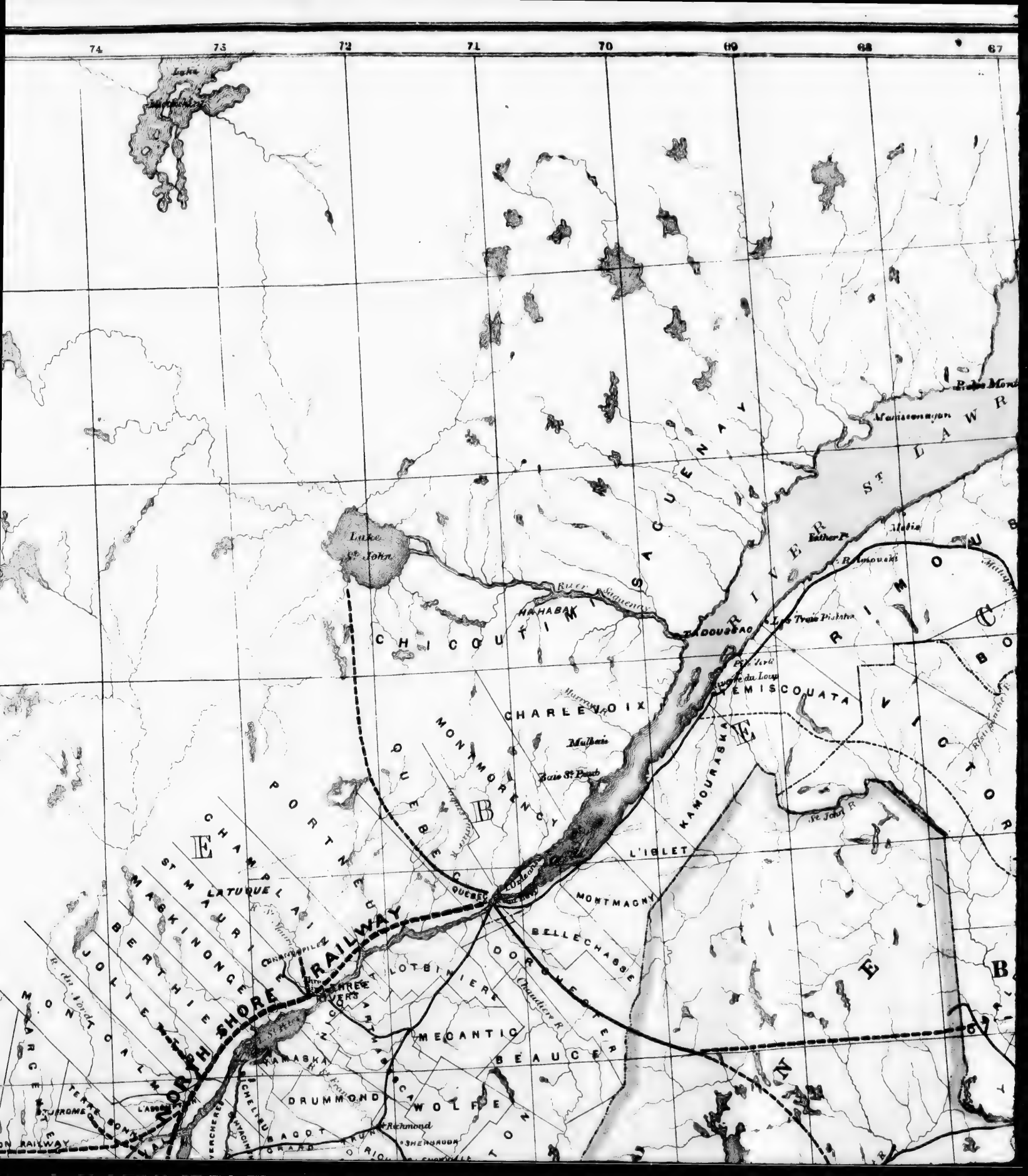
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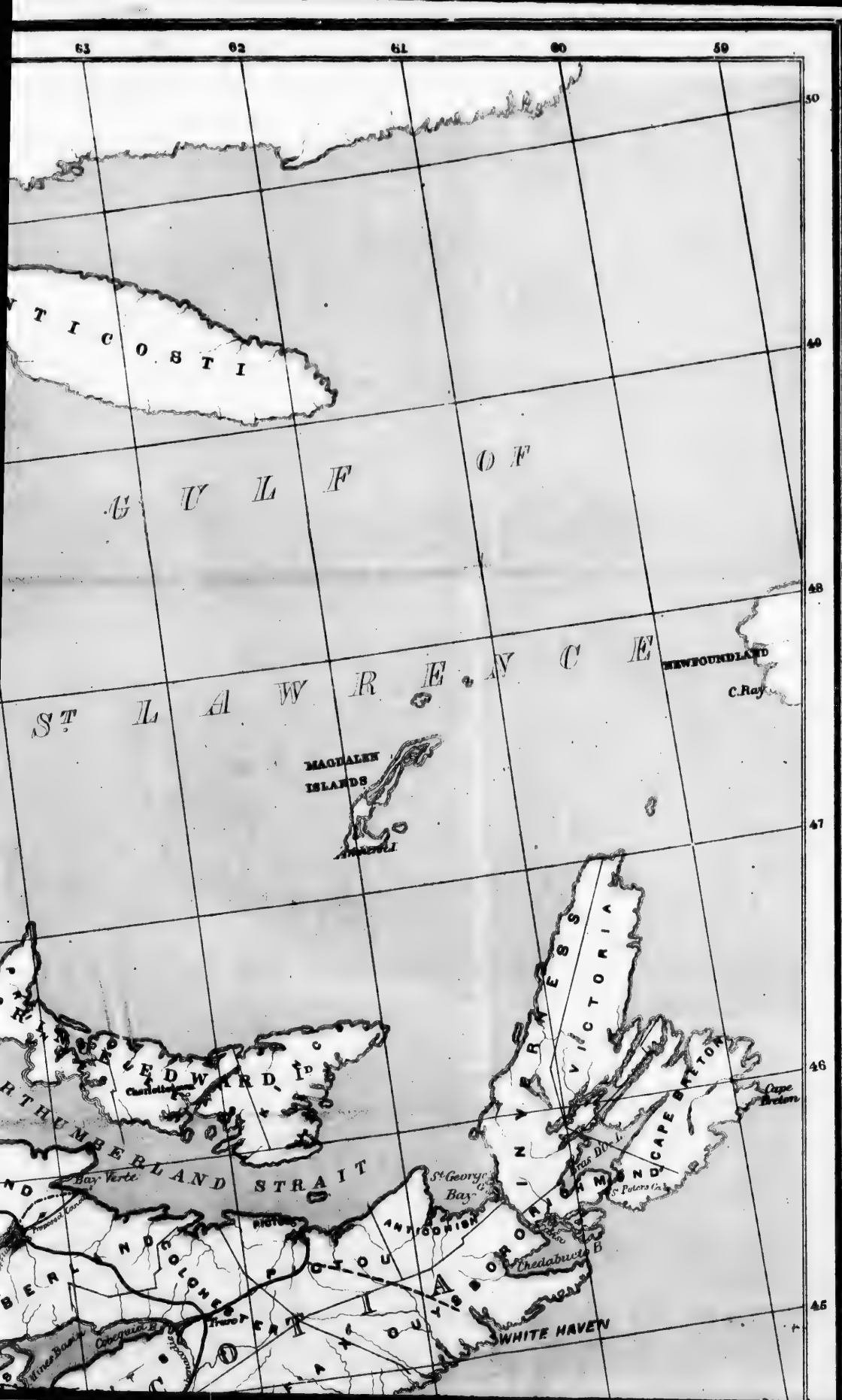






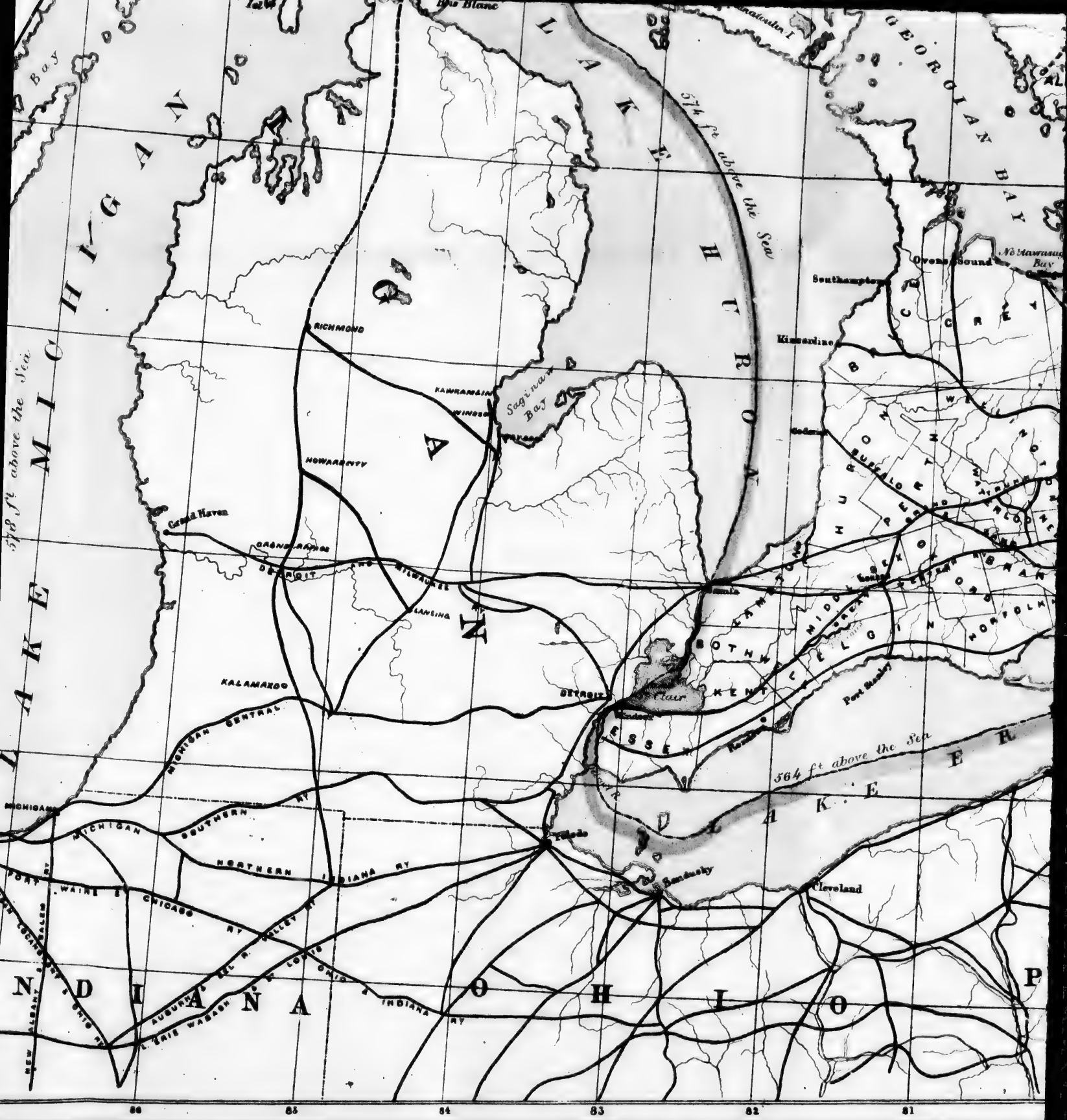


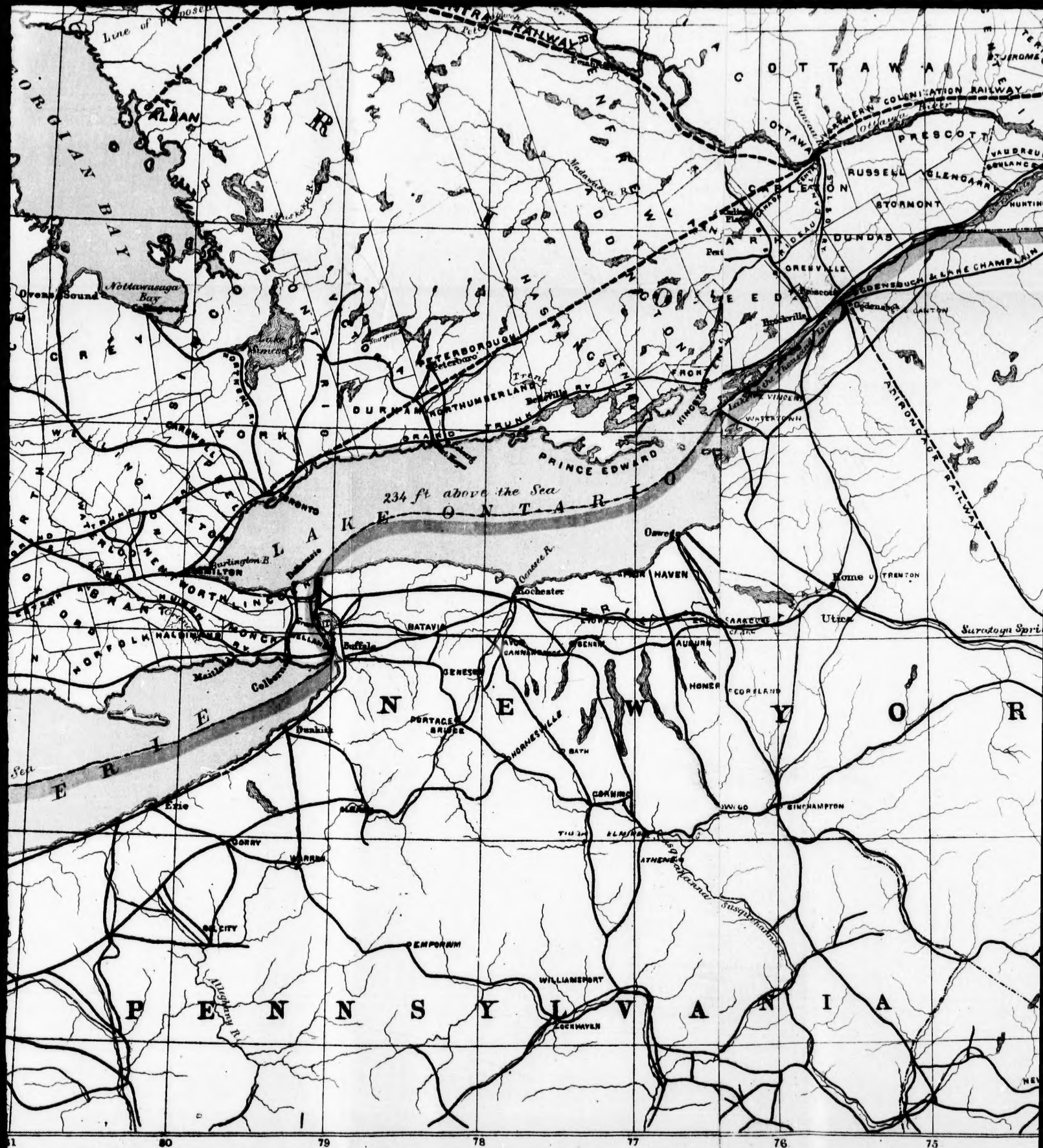




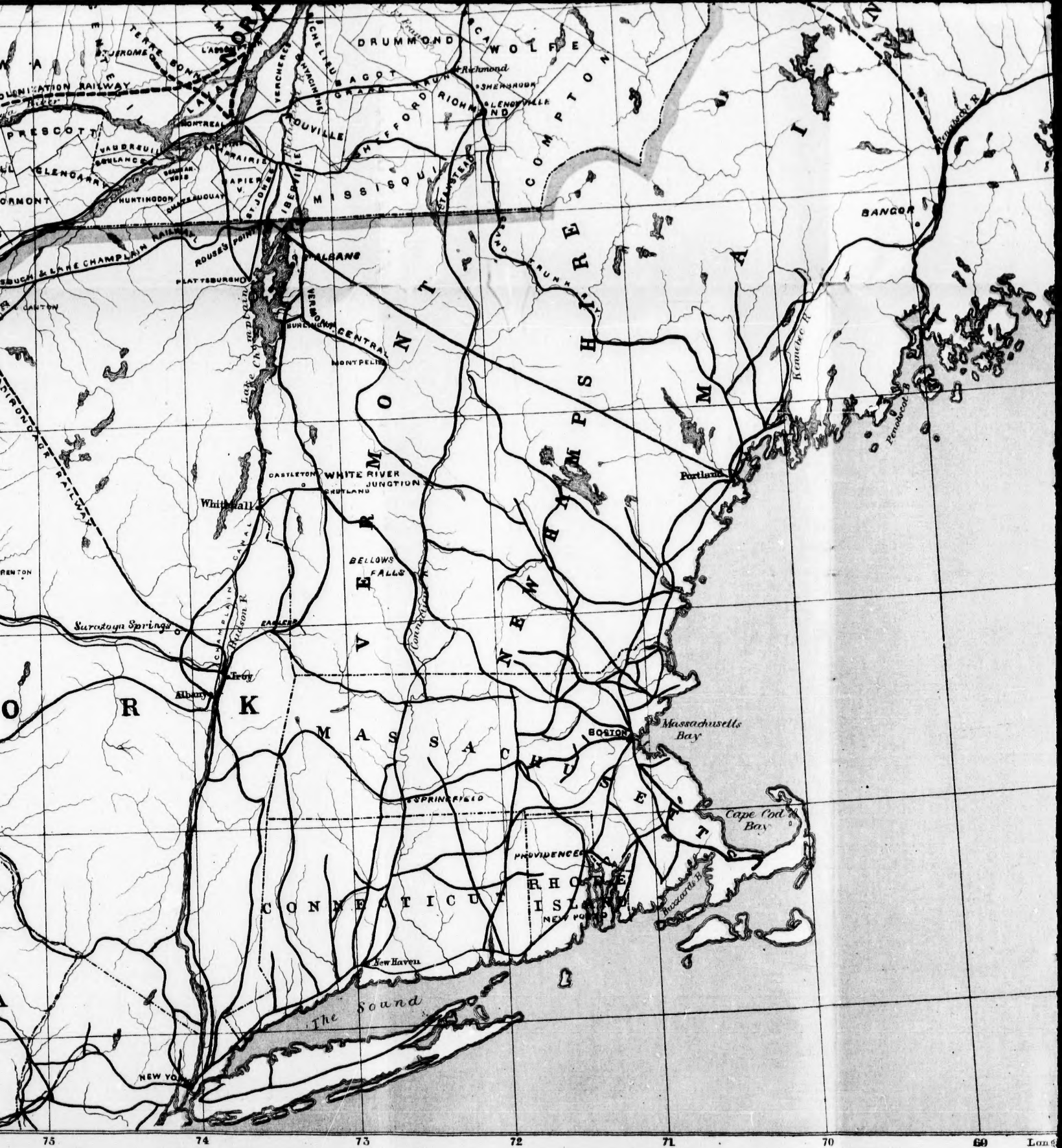












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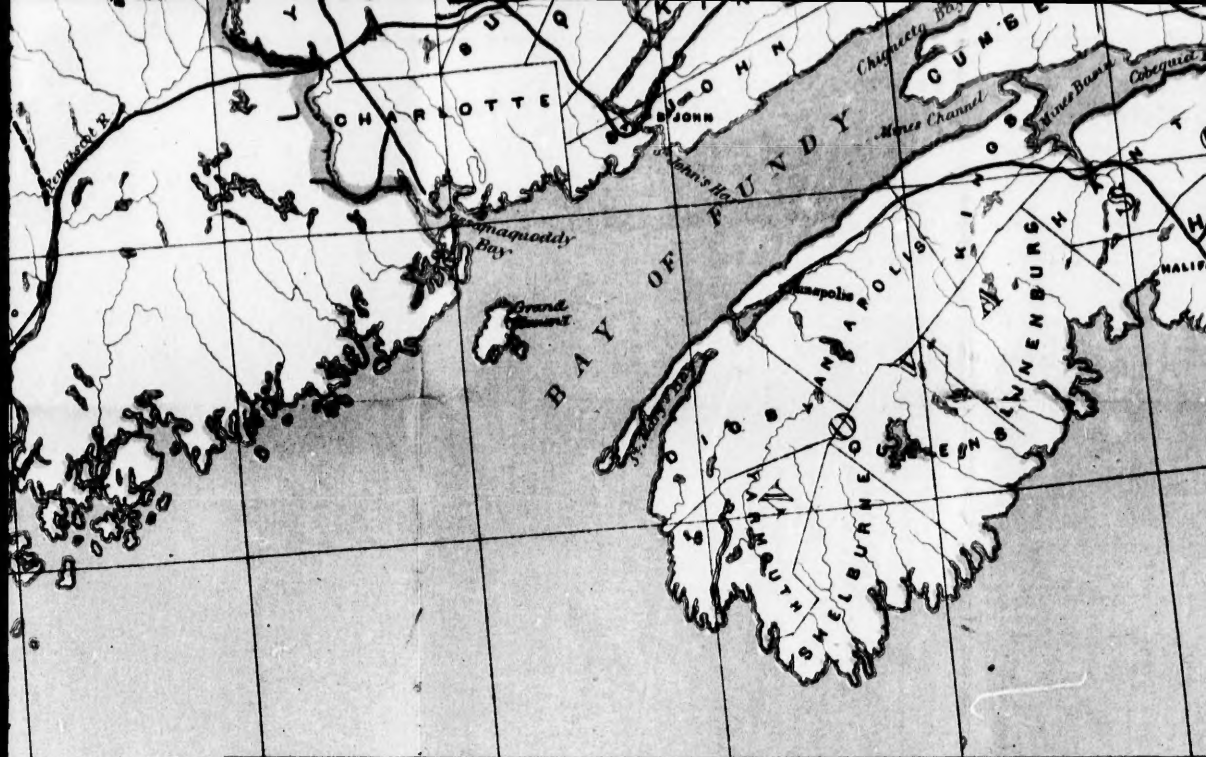
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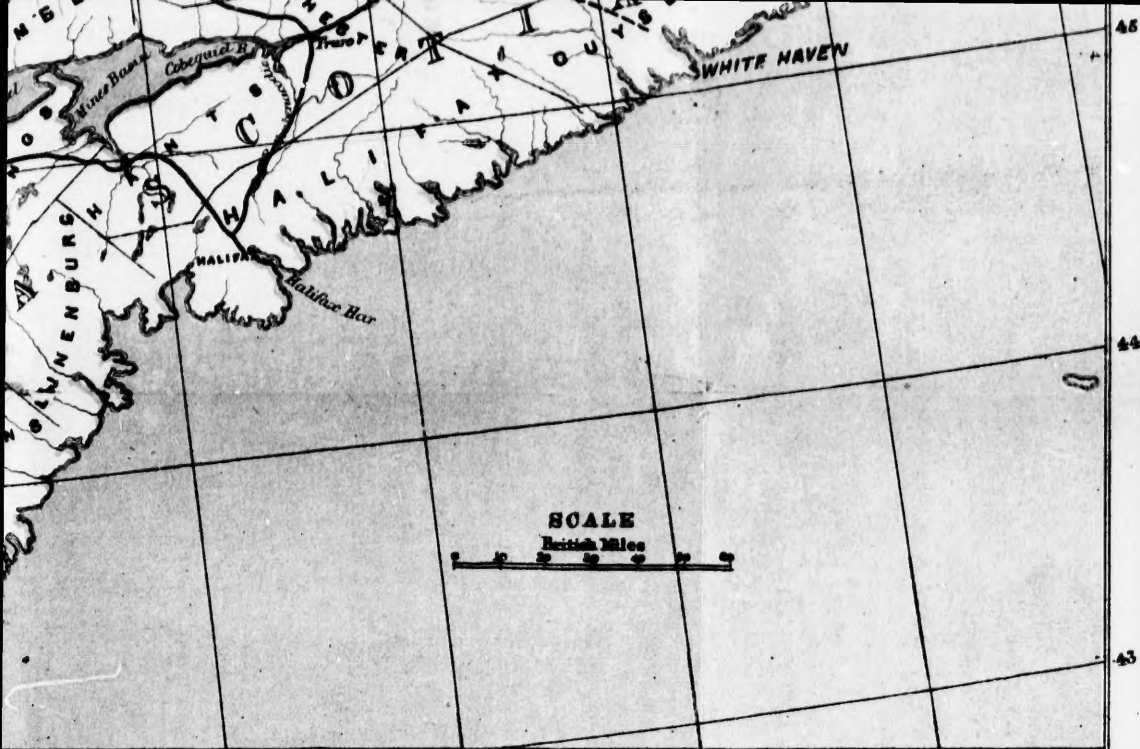
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**MA**  
of the  
**NORTH SHORE**  
and its  
**CONNECTION**  
to Accompany  
**ENGINEERS**  
1872

Burles & Lafrenay & Co. Montreal



**MAP**  
of the  
**SHORE RAILWAY**  
and its  
**CONNECTIONS**  
to Accompany the  
**ENGINEERS REPORT**  
1872.

*S. Seymour*  
Engin Chief